

MINING WORLD

10th
Anniversary
Issue

AMERICAN MINING
CENTRAL PREVIEW

SEPTEMBER, 1949

VOL. 11 No. 10
38c a Copy

With which is combined **THE MINING JOURNAL**

ANOTHER
PACIFIC
PRODUCT

Pacific SHEAVE BLOCKS

Used on hundreds of slushing operations throughout the world, Pacific Sheave Blocks have earned an outstanding reputation for dependable service. They are strong and rugged—built to operate with safety and efficiency on the toughest jobs.

Outstanding features include manganese steel sheaves and manganese steel side plates, heavy duty anti-friction roller bearings, quick-opening "snatch block" construction and an extra wide throat. They may be equipped with safety swivel shackle, hook or shackle.

WRITE FOR BULLETIN 130

TIME
TESTED

Alloy Steel and Metals Co.

1862 East 55th Street

Los Angeles 11, California



Hydroséal Pump At Northwest Magnesite Doing The "Impossible" And Doing It Well

THE PUMP THAT STUMPED THE "EXPERTS"

Despite dire pre-installation predictions that no pump could handle the job, this B-C Frame Hydroséal Pump has performed with utmost satisfaction and low maintenance.

In most heavy-media separation plants, the handling of cone discharge from the airlift is a job for a bucket elevator, even though this equipment usually proves less than satisfactory, at best. Pioneer-minded engineers of the new H.M.S. mill of the Northwest Magnesite Co.,^{*} Chewelah, Washington, felt that it could be pumped, but many outsiders dismissed the scheme as "simply impossible." Some said, "A pump won't raise that heavy density pulp containing chunks of rock up to 1½ inch." Others said, "If a pump did handle the material, wear would be excessive." ... A 4" wide, B-C Frame Hydroséal Pump was installed in November, 1943 and, according to the management, it has worked excellently and maintenance has not been above the average for rubber lined pumps. ... This pump handles about 400 tons per 6 hour day of plus ½" minus 1½" magnesite (sp. gr. 3.0) at a consistency of 80% returning the pulp to the circuit. ... If you have a job where pumping "seems impossible," perhaps the Hydroséal Pump can do the job. Catalog on request.

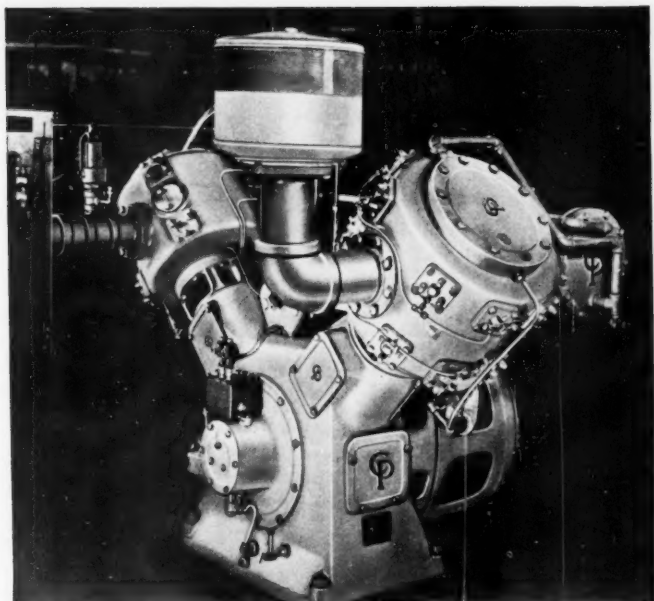
^{*}The complete story of this appeared in the December, 1947 issue of Mining World.



HYDROSEAL, PACKLESS AND MAXIMIX DESIGNS ARE COVERED BY
PATENTS AND APPLICATIONS IN THE MAJOR MINING CENTERS OF
THE WORLD

Correspondence from United States and Canada to
ALLEN-SHERMAN-HOFF CO., 221 S. 15th St., Phila. 2, Pa.

Correspondence from anywhere else in the World to
A-S-H EXPORT CO., 221 S. 15th St., Phila. 2, Pa.
CABLE ADDRESS: ASH, PHILADELPHIA—BENTLEY'S CODE



here's the answer to restricted floor space —the Type Y Compressor

While its compact design makes it ideal for close quarter installation—it has plenty of other outstanding advantages.

It is shipped intact as a "package unit," ready for external connections.

It requires only a simple foundation and no special skill is needed to align and install it.

It operates at high efficiency because of such valuable features as large area Simplate valves, multi-step capacity regulation, effective inter-cooling, precision bearings and force-feed lubrication.

And finally it's extremely easy on maintenance.

Available with built-in or direct-coupled motor, or with V-belt drive, in capacities of 500 to 900 c.f.m., at 80 to 125 pounds pressure. Sizes for other pressures also furnished.

Write for full information.



**CHICAGO PNEUMATIC
TOOL COMPANY**

General Offices: 8 East 44th Street, New York 17, N. Y.

PNEUMATIC TOOLS • AIR COMPRESSORS • ELECTRIC TOOLS • DIESEL ENGINES
ROCK DRILLS • HYDRAULIC TOOLS • VACUUM PUMPS • AVIATION ACCESSORIES

Bethlehem

HOLLOW DRILL STEEL

All 5 of the Features You Need

- ★ Ideal for either forged or detachable bits.
- ★ Center hole is smooth, true, and well-centered.
- ★ Wide quenching range for easy heat-treating.
- ★ Controlled hardenability for top performance.
- ★ Made from tough, fatigue-resisting steel.

For Immediate Delivery

Hollow Drill Steel (Carbon or Alloy) • Solid Drill Steel • Quarrying Steels
Auger Drill Steel • Stone-Dressing Steels

BETHLEHEM PACIFIC COAST STEEL CORPORATION

Sales Offices: San Francisco, Los Angeles, Portland, Seattle, Honolulu

BETHLEHEM PACIFIC



MINING WORLD, published monthly except in April when publication is semi-monthly, by American Trade Journals, Inc., 121 Second Street, San Francisco 5, California. Entered as second class matter at the post office at San Francisco, California, under Act of March 3, 1879.

575 Tons an Hour 24 Hours a Day

CUMMINS
Diesel
DIESEL

SINCE 1918 PIONEER OF PROFITABLE POWER THROUGH HIGH SPEED DIESELS



For two years this Cummins-Powered Model 1201 Lima shovel worked 24 hours a day, six days a week for Terteling Brothers Company, Inc., at the Vogue Coal Company strip mine near Madisonville, Kentucky.

The shovel, powered with a Model LI-600 Cummins Diesel and equipped with a six-yard bucket, digs unblasted coal out of a thick seam and loads up to 575 tons per hour into a fleet of seven Cummins-Powered Euclid Coal Haulers. These hauling units carry up to 45-ton loads, and in one typical eight-hour shift, working on a three-mile round trip, moved a total of 4,300 tons.

CUMMINS ENGINE COMPANY, INC., Columbus, Indiana

*Can you afford
any other power?*



SEE YOUR CUMMINS DEALER

CUMMINS SERVICE & SALES	1661 McGarry St., Los Angeles, California, Tel. Prospect 1026
WATSON & MEEHAN	1960 Folsom St., San Francisco 3, California, Tel. Market 1-8930
CUMMINS INTERMOUNTAIN DIESEL SALES COMPANY	1030 Gale St., Salt Lake City 11, Utah, Tel. 9-3768
CUMMINS DIESEL SALES OF OREGON, INC.	1225-35 Southeast Grand Ave., Portland 14, Oregon, Tel. EAst 7146
CUMMINS NORTHWEST DIESEL SALES	2717 First Ave., South, Seattle 4, Washington, Tel. Main 3870
CUMMINS DIESEL SALES OF SPOKANE	South 155 Sherman St., Spokane 5, Washington, Tel. Madison 0101
CUMMINS & MORAN	426 W. Madison, Phoenix, Arizona, Tel. 4-4040
CUMMINS DIESEL SALES OF IDAHO, INC.	207 S. Capitol Blvd., Boise, Idaho, Tel. 3783



You're ready for anything when you put this Timken rock drilling team to work.

With a supply of Timken standard steel bits and Timken carbide insert bits on hand, plus a suitable number of shouldered and threaded steels, you're ready to meet — and beat — any rock condition that may crop up.

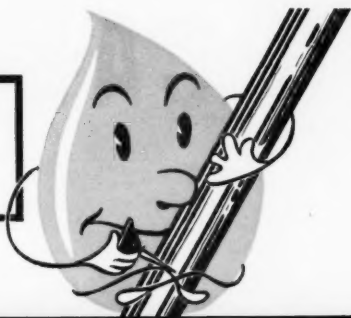
You don't have to carry two kinds of steels; Timken standard steel bits and Timken carbide insert bits are interchangeable on the same Timken thread — the threaded union proved by 17 years use wherever rock and ore are drilled.



Write for specific information
covering your requirements.

THE TIMKEN ROLLER BEARING COMPANY
CANTON 6, OHIO
Cable Address "TIMROSCO"

STICKS TIGHT to fast-moving surfaces
—because it's made extra adhesive. Keeps
oil consumption down, too.



For the extra tough jobs of lubricating air tools...

EXTREME PRESSURE ADDITIVE
gives it the tough body and high film
strength to safeguard against surface
scoring—at all times.



depend on
**SHELL
TONNA
OIL F**

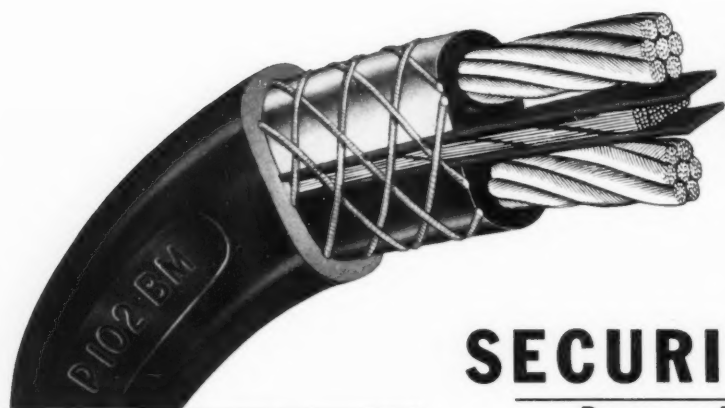
(MEETS INGERSOLL-RAND SPECIFICATION 433)



EMULSIFIES READILY WITH MOISTURE
so it won't be washed away by moisture entering
the tool through the air line. This emulsibility
is an extra safeguard against rust, too.

P.S. Shell offers you the "right" oils for all
your air-powered tools and compressors

NO CABLE LIKE IT!



**CUTS
SHORTS**

SECURITYFLEX **PARALLEL MINE CABLE** **with BREAKER-STRIP***

SECURITYFLEX *Safety Firsts*

- *First* to comply with U.S. Bureau of Mines Flame Test and Pennsylvania Flame Test. (Insist on mark of full compliance—P-102-BM—at 12' intervals.)
- *First and only* Anti-Short Breaker Strip* construction—cuts short circuits between conductors.
- *First* parallel mine cable with ground wire.
- *First and only* D-Shaped* insulation—prevents overriding of conductors.
- *First* to have insulation and outer jacket bonded together—to form a solid block around conductors.
- *First* with smaller diameters that pack more on a reel, ease handling.

*Reg. U.S. Pat. & Tm. Off.

THE PATENTED anti-short breaker-strip construction of Securityflex Parallel Mine Cable is an exclusive development of Anaconda Wire & Cable Company. No other mine cable gives you this protection against shorts between conductors, even under the heaviest impact.

Breaker-Strip (available with or without ground wire) is only one of the many Securityflex features. Add up the advantages of Anaconda's specially compounded, extra tough neoprene jacket . . . non-kinking construction . . . improved heat-resisting synthetic rubber insulation . . . superior manufacturing techniques . . . the *Safety Firsts*.

Call your local Anaconda distributor (located in all principal cities) about Securityflex—the cable that takes a beating *and likes it!* Anaconda Wire & Cable Company, 25 Broadway, New York 4, N.Y.

49432

ANACONDA

Securityflex

MINE CABLE





GM Diesel-powered Koebling 605 dragline with 1 1/2 yd. bucket, loads shale in Euclid bottom dump. The GM Diesel-powered Euclids haul 17 yard loads up a 15% grade climbing out of the cut.



Allis-Chalmers HD-19 pulling a 12-ton "rooter" scrapes heavy shale off rock vein in final stage of stripping at National City, Michigan. A General Motors 6-71 Diesel powers the HD-19.



GM Diesel-powered Euclid loader, pulled by Allis-Chalmers HD-19 tractor, teams up with 7 GM Diesel-powered Euclid bottom dumps to move as much as 150,000 yards of earth a month.

100% GM DIESEL POWER — "100% PLEASED" Says the Contractor

Stripping a 55-foot overburden of Michigan's hard clay, heavy soil and shale to bare gypsum deposits takes plenty of rugged, reliable power. That's why A. S. Leffler, contractor, standardizes on General Motors Diesels. Leffler operates 16 of them.

"We get more work done at about one-half the cost," says Mr. Leffler. "We went to the one make of engine 100% because of our previous satisfactory experience. Standardization on GM Diesels also helps keep our parts inventory low."

Remember all GM Series 71 Diesels have the same bore and stroke. Thus most wearing parts are interchangeable between engines of different sizes. Result: lower parts inventory, less time out for repairs, a big reduction in maintenance costs.

No wonder so many operators rely on these brawny 2-cycle Diesels to speed production and trim costs. You too, will find it pays to specify GM Series 71 Diesels. Get the facts from your local GM Diesel distributor.

DETROIT DIESEL ENGINE DIVISION

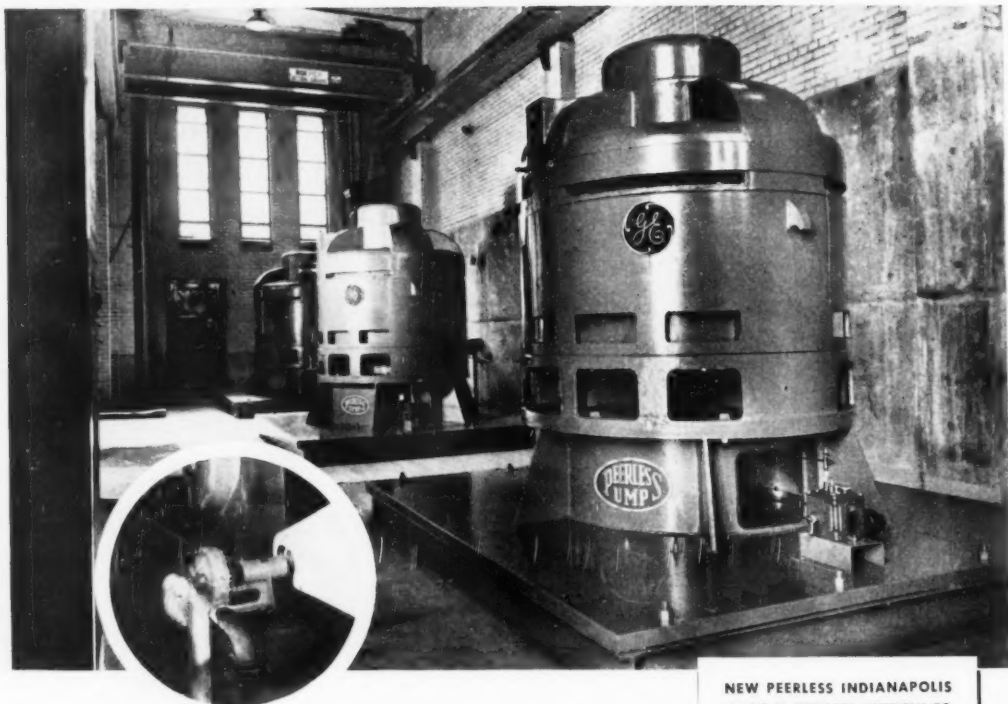
SINGLE ENGINES...Up to 200 H.P. DETROIT 25, MICHIGAN MULTIPLE UNITS...Up to 800 H.P.

GENERAL MOTORS



DIESEL BRAWN WITHOUT THE BULK

WIDEST CAPACITY RANGE



FROM A COMPREHENSIVE LINE OF VERTICAL AND HORIZONTAL PUMPS

Peerless offers 2 to 220,000 gallons per minute

A tapful or a torrent! No matter what your water capacity requirements are, Peerless can meet your pumping needs.

Fractional hp horizontals, like the Peerless "Fluidyne" pumps handling cooling-jacket water in the inset above, furnish a few gallons a minute. The huge Peerless mixed-flow pumps in the larger photo, pump away drainage water at the rate of tens of thousands of gallons a minute.

Widest capacity range is but one of a host of reasons why industries, municipalities and commercial businesses plan with Peerless for all their needs for pumps. Here are others:

ALL PRACTICAL HEADS: Lifting water from 1000 feet or more is a practical accomplishment of Peerless vertical deep well pumps. Pumping against heads of

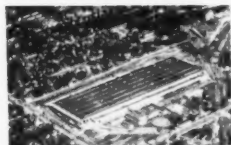
690 feet is a common task for Peerless horizontal centrifugal pumps.

ALL TYPES OF DRIVE: Electric motor, right angle gear, engine, belt (V or flat) or combinations of the above, are all available from Peerless, with pump and driver engineered as a unit.

MODERN DESIGN: Peerless pumps are designed for top flight performance over extended periods of time. And the practical consideration of ease of maintenance and repair is figured in to their functional, good looking design.

NATIONWIDE SERVICE: Peerless sales and field service is available in all principal U. S. cities and abroad. Plan with Peerless for all your pumping needs. Individual bulletins on all types of Peerless Pumps are available upon request.

**NEW PEERLESS INDIANAPOLIS
PLANT IS DEVOTED ENTIRELY TO
PUMP PRODUCTION AND SERVICE**



Here is one of America's newest pump plants—19 acres of modern manufacturing facilities devoted to precision production of horizontal and vertical pumps, centrally located at Indianapolis. Plan with Peerless for pumps plus fast, complete pump service.



PEERLESS PUMP DIVISION FOOD MACHINERY AND CHEMICAL CORPORATION

Los Angeles 31, California

Indianapolis, Indiana

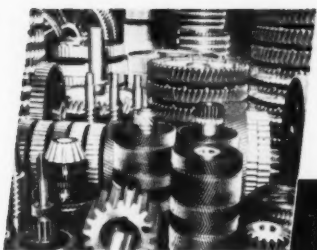
District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 N. Broadway; Atlanta Office: Rutland Bldg.; Decatur, Ga.; Omaha, Neb., 4330 Leavenworth Street; Dallas 1, Texas, 3905 Elm Street; Fresno, Calif.; Los Angeles 31, Calif.

Peerless

VERTICAL AND HORIZONTAL

Pumps

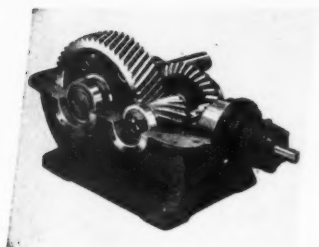
MINING WORLD



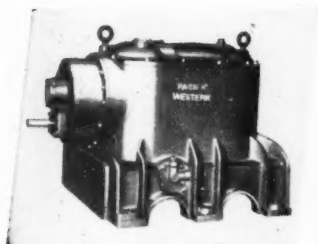
**Gears of all types
and sizes**



**Single-reduction
speed reducer**



**Right-angle
speed reducer**



**Vertical-shaft
speed reducer**

A typical mining industry application of Pacific-Western speed reducers is shown in the photograph below of a ball-mill drive.



SPEED REDUCERS for every mining need

Fast delivery is now available on many popular sizes of PACIFIC-WESTERN standard reducers from stock.

Complete range of ratios from 2:1 to 300:1, capacities from fractional horsepowers up to 650 in standard units; higher horsepower capacities available in special designs. Standard units are available in single, double and triple reductions. Single or double extensions on high and low speed shafts, as well as parallel, right-angle, and vertical-shaft arrangements can be obtained.

GEARS for every need... PACIFIC-WESTERN designs and cuts all types and sizes of gears and builds special gear boxes.

COMPLETE engineering service... We will be glad to assist you in all your mechanical power transmission needs. Over a half century of gearmaking experience is available to you to help YOU solve YOUR problems.

Write, wire or phone our nearest plant or office for complete information.

WESTERN GEAR WORKS, Seattle 4, Washington
WESTERN GEAR WORKS, Box 192, Lynwood, California
PACIFIC GEAR & TOOL WORKS, San Francisco 3, California
SALES REPRESENTATIVES: Portland... Salt Lake City



**GOOD
GEARS
FOR
OVER
50
YEARS**

**PACIFIC GEAR
& TOOL WORKS**



**WESTERN
GEAR WORKS**

PACIFIC-WESTERN



GEAR PRODUCTS

4021

MINING WORLD

with which is combined
THE MINING JOURNAL

A Miller Freeman Publication

Published monthly except in April when publication is semi-monthly

SEPTEMBER, 1949

VOL. 11 No. 10

SAMPLE LOCATIONS

Capitol Concentrates	14
Magma Copper's New Mill	16
Spokane to Be 1949 American Mining Congress Host	20
Hinsdale County's Ghost Camp —by Muriel Sibell Wolfe	22
Proposed Alaska Railroad Definitely Tied to Territory's Development—by Warren G. Magnuson	24
Mining Men and Their Activities	65
INTERNATIONAL SECTION	
International Panorama	33
Truck Haulage Advances	36
Britain's Base Metal Position—by P. J. Sergeant	39
Prominent Men in International Mining	43

PUBLISHING OFFICE

San Francisco 5, Calif. 121 Second Street
GARfield 1-5887

BRANCH OFFICES

Seattle 4, Wash. 71 Columbia St. MAin 1626
Los Angeles 13, Calif. 124 W. Fourth St. MUtual 8196
Vancouver, B. C. Royal Bank Bldg. MArine 1520
New York 17, 370 Lexington Ave., MUrray-Hill 3-9295
Chicago 4556 N. Paulina, SUnnyside 4-6558

GENERAL MANAGER, San Francisco M. F. HOLSINGER
EDITOR, San Francisco JOHN B. DORSH
ASSOCIATE EDITOR, Vancouver CHARLES L. SHAW
NORTHWEST MANAGER MILLER FREEMAN, JR.
PRODUCTION MANAGER E. B. HERRINGTON
EASTERN MANAGER KAREL WECKAMP

Published by
AMERICAN TRADE JOURNALS, INC.
MILLER FREEMAN, President
L. K. SMITH, Vice-President
W. B. FREEMAN, Publisher



Copyright 1949 by American Trade Journals, Inc.

Contents may not be reproduced without permission.

SUBSCRIPTION RATES

U. S., North, South and Central American Countries	\$3.00
Other Countries	\$4.00
Single Copies	\$0.35
Directory Number	\$2.00

DRIFTS AND CROSSCUTS

A Birthday and a Review

With this issue MINING WORLD completes 10 years of service to the industry. They have been eventful years. The European war broke before the third number was off the press. From late 1941 until mid-1945 the very existence of this nation was at stake and the war time order of the day was to obtain metals at any cost. The last four years have been equally important as we have attempted to rebuild the war destroyed industrial plants of half the world with the end of the reconstruction job not yet in sight.

MINING WORLD was founded originally as a metal mining magazine. This is still considered its primary function—the diffusion of knowledge relating to the metal mining industry. However, the editorial scope is flexible enough to permit inclusion of any material of a nonmetallic nature so long as methods applied may find application in the field of metal mining, ore dressing or metallurgy.

The decade of progress recorded by the magazine has seen an aggressive expansion of scope. Although published in the West where most of the nonferrous metal mining is carried out, it never has been a sectional publication. In May, 1946, MINING WORLD combined with the MINING JOURNAL of Arizona, a publication that had served the Southwest for over 25 years with a recognized standing in the industry. The results of this union have paid off in a better coverage of the western mining industry and gave to a much wider circle of readers the best that the two magazines had to offer. September, 1947, marked another important step which embodied the *Iron Range Edition*. This issue brought recognition to the magazine and put it on a national footing, making the Atlantic Seaboard the temporary eastern frontier. The following September, the *International Supplement*, WORLD MINING, came out. World wide in scope, WORLD MINING knows no frontiers and the articles brought out on its pages are eagerly read by nearly every mine operator, financier, member of the board of directors and mining and metallurgical engineer in the world as English is, by and large, the universal language of the industry.

We are truly proud of the continued growth of MINING WORLD. Also, we are proud of the part that MINING WORLD plays in diffusing ideas of world-wide interest to the mining fraternity. These serve to prepare the way for closer cooperation and understanding among the nations and among individual operators in their respective locales.

Concurrently with this tenth anniversary of MINING WORLD is the Metal Mining Convention of the American Mining Congress to be held in Spokane, Washington, on September 26, 27 and 28. It is fitting that mention be made of this at the present time because in the Northwest is a new empire with a backbone of mining to make it strong, and it was here that MINING WORLD first established its roots. The miners of the Northwest do not spend time in retrospection. Instead, they are looking forward, and to point up only the major developments of the industry shows the following: The intense activity of the Coeur d'Alene district; the new Pend Oreille development; the Greater Butte project; the phosphate developments in Idaho; and the growth of metallurgical plants in the Spokane area.

In reviewing the growth made by MINING WORLD thanks must be tendered to the men in the industry who gave generously of their time and advice to help make the magazine what it is today. These men are well known to us. They are the miners in the stoves and the heads of corporations and all grades of workmen and technical men between these two extremes. We have met and talked with them in the mill and smelter, above timberline and below sea level, in grand offices and underground mine offices, over luncheon tables and in the mine dry, in open pit and stope and on dredges and hydraulic mines.

Looking forward on the next decade is most encour-

Continued on Page 12

MINING WORLD

the new brilliant

EDISON MODEL R-4

ELECTRIC CAP LAMP

New from headpiece to battery case, the brilliant Edison Model R-4 gives better light for the miner on the job . . . gives at least 25% more light than other miner's cap lamps.

With its increased candle power, the Model R-4 gives a new brilliance that means greater safety for miners and greater mining efficiency—an achievement worthy of the great name, Edison.

HEADLINE FEATURES

- Positive "Spot" Adjustment
- Floodlight When Required
- Comfortably Balanced Headpiece
- Four-Cell Edison Nickel-Iron-Alkaline Battery
- Welded Steel Cell Containers
- Tough Nylon Plastic Outer Case

25% more light

than ever before available

in a Miner's Cap Lamp

U. S. BUREAU OF MINES
APPROVED

ANOTHER EDISON FIRST

The brilliant, unfailingly dependable light can be focused to an intense clear "spot", or a floodlight provided as the job requires.

Demonstrations and detailed facts?
Gladly, upon request.



The Edison 4 cell nickel-iron-alkaline battery, with its welded steel containers in a tough nylon plastic outer case, is lightweight, mechanically strong, easily serviced, and durable.

MINE SAFETY APPLIANCES COMPANY

BRADDOCK, THOMAS AND MEADE STREETS PITTSBURGH 8, PA.

At Your Service: 48 BRANCH OFFICES in the UNITED STATES

MINE SAFETY APPLIANCES CO. OF CANADA LIMITED - Toronto, Montreal, Calgary, Winnipeg, Vancouver, New Glasgow, N.S.

MINE SAFETY APPLIANCES CO. (S.A.) (PTY.) LTD. - Johannesburg, South Africa; N'Dola, No. Rhodesia; Bulawayo, So. Rhodesia

Representatives in Principal Cities in Mexico, Central and South America CABLE ADDRESS: "MINSAP" PITTSBURGH



HEAVY-MEDIA SEPARATION

Heavy-Media Separation Processes offered by Cyanamid are now being used on a long list of metallic and non-metallic ores. Expanding uses have considerably increased the backlog of technical data on their applicability as preconcentration processes in conjunction with flotation and other recovery methods, as well as to make a finished concentrate on ores previously considered too low-grade for profitable treatment.

Cyanamid Mineral Dressing Laboratory facilities include a continuous Heavy-Media Separation pilot plant with commercial-size equipment to test carload samples under actual mill conditions. By arrangement through Cyanamid Field Engineers, the services of the Cyanamid Mineral Dressing Laboratory can be made available to work on your beneficiation problem. We invite your inquiry.

AMERICAN CYANAMID COMPANY
30 Rockefeller Plaza, New York 20, N. Y.

AZUSA, CALIFORNIA



EL PASO, TEXAS

Continued from Page 10

aging. Although it is dangerous to make a prophecy, the following things appear to be reasonably certain of fulfillment: Taconite will furnish part of the country's iron requirements; titanium will become a common metal and will take its place with aluminum and magnesium; geophysics will play a greater part in ore finding; open pit mining will account for a much greater tonnage of ore; greatly expanded search for radioactive elements will continue; ore dressers will turn to recovering disseminated minerals from lower grade deposits rendered economic by mining large tonnages and to the handling of non-sulphide minerals.

With these and many other projects on the drawing boards, in the laboratories and in the pilot plants, **MINING WORLD** dedicates itself to continuing to report the progress of the industry.

Hope for Strategic Metal Producers

Senator Pat McCarran, with no less than 18 Senators as co-sponsors, introduced a bill, S. 2320, aimed at preserving the United States' strategic metals industry upon a plan based upon receipts of foreign imports of the metals. Provided that the Director of the Bureau of Mines would report semi-annually the quantities of tungsten, antimony, mercury and manganese produced by domestic miners during the preceding six month period, the Secretary of the Treasury would be required to distribute among the domestic producers of the four metals within 30 days of the receipt of the report the following amounts for imported metals brought into the U. S. during the period: Tungsten, 38¢ per pound; antimony, 1¢ per pound; mercury, 25¢ per pound; manganese, 1/4¢ per pound. The amounts to be distributed among the domestic producers of the metals in the event that sufficient custom receipts accrue cannot exceed \$3.80 per pound of tungsten, 10¢ per pound of antimony, \$2.50 per pound of mercury, and 2 1/2¢ per pound of manganese.

This bill, should it become law, might stimulate the domestic production of these metals. Moreover, it should permit the U. S. to maintain a healthy industry for each of the metals. One string tied to the bill that warrants scrutiny by all operators is the stipulation that payments would not be distributed to royalty holders unless they actually participate in the operational risks of the operation.

Although this bill may go the way of nearly all of those that fall into this category, domestic producers will vote it a step in the right direction.

Fair Compensation for Miners

Pat McCarran, Senator from Nevada, has had his bill amending the Contract Settlements Act of 1944, S. 2294, favorably reported by the Senate Judiciary Committee. This bill authorizes payment of fair compensation to wartime producers of strategic and critical minerals and metals who suffered losses through no fault of their own in mining their products.

The bill provides that the claimant present his case to the contracting agency which would forward its recommendations to the U. S. Bureau of Mines. The Bureau would review the findings and report to Congress as to the nature of the claims, the amount determined to be payable by the contracting agency, the amount determined by the Bureau of Mines to be payable with any other information of a helpful nature for Congress to determine the proper amount to pay.

In reviewing the above it is seen that by virtue of the various boards of review and the ponderous and mysterious ways by which government agencies move about their business that the claims might go from desk to desk for years before final action is taken. Certainly a better way could be devised to pay the just compensation to the many individuals and companies that willingly put their last shirts in pawn to further the winning of the war.

J.B.D.

MINING WORLD

New **BIG YELLOW ENGINES BUILT TO HANDLE BIG JOBS**



The 500-hp. D397—
biggest of the new
"Cat" Diesels.

MINING MEN the world over have learned from long experience that they can always depend on "those big yellow 'Caterpillar' Diesel Engines." They've proved themselves in shovels, dredges, draglines, compressors, hoisting machinery, and as Electric Sets.

Now you can power even bigger equipment—with new, bigger "Cat" Diesels. In addition to present models, four great new Engines, ranging up to 500 hp., and four new Electric Sets, generating up to 314 kw., are now coming out of the world's finest, most modern engine

factory. Every one is designed to burn low-cost, non-premium fuels—assuring substantial savings. Every one is given a closely supervised dynamometer run to assure proper break-in and full horsepower output.

When you buy new equipment, specify "Caterpillar" Diesels for power. And when you consider replacing the power in your present equipment, call on your reliable "Caterpillar" dealer. For immediate information, **SEND IN THE COUPON.**

CATERPILLAR TRACTOR CO., San Leandro, Calif.; Peoria, Ill.

CATERPILLAR
REG. U. S. PAT. OFF.
DIESEL
**ENGINES • TRACTORS
MOTOR GRADERS
EARTHMOVING EQUIPMENT**

CATERPILLAR TRACTOR CO.
Box MW-79, Peoria, Illinois

Send me specifications on the new "Cat" Diesel Engines and Electric Sets.

Name

Address



LEGISLATORS ACTIVE IN ATTEMPTING TO GET APPROVAL OF VARIOUS MINE INCENTIVE PLANS

As the present session of Congress draws to a close, the confusion with regard to mine incentive payment legislation becomes worse. The O'Mahoney-Interior blank-check bill (S. 2105) has been amended in committee by Senator Malone of Nevada and now contains stockpile provisions and also some help for mines producing 100 tons of metal per year or less. Senator Ecton of Montana has introduced S. 2230, which is a modification of the Lemke bill and which, it is understood, is the proposal most satisfactory to producers of chrome, manganese, and similar minerals.

The Ecton bill may serve to point out in the Senate how far one can go in outlining standards and limiting administrative discretion. The bill has considerable merit, but has no chance of being reported favorably, according to informed sources.

The Murray-Engle bill, S. 240, favored by most of the mining industry, follows a middle of the road course, but is not favored by the Administration as is S. 2105. Consequently, it is not likely that it will be reported to the Senate in its present form. The betting seems to be that Senator O'Mahoney will bring out S. 2105 after writing into it the standards now contained in S. 240, or something like them.

An exploration bill, modeled after the exploration features of the Murray-Engle bill has been introduced in the House by Representative Engle and has received favorable action by the House Public Lands Committee. The possibility of amending such a bill after it gets to the House floor to include production incentive payments is not too remote.

Representative Baring of Nevada, possibly despairing of getting action by the House Rules Committee on H. R. 976, has very ingeniously given the problem a new twist in his bill H. R. 5679, which could add a new section to the Stockpile Act of 1946. Under this bill the Munitions Board would have to "Buy American" as long as domestic strategic and critical materials are available and is authorized to go up to 50 per cent above the market price. The type of contracts called for in the Baring bill would, in effect, put the Munitions Board in the incentive payments business, as "contracts shall contain escalator clauses by which the price paid may be adjusted monthly so that the producer will receive his costs, including

allowances for depreciation, amortization, depletion, and normal development work, plus a reasonable profit." Hats should be off to Representative Baring for this idea, which went down the chute for the Armed Services Committee to mull over. It is a simple little bill, but it packs an awful wallop and would do the trick for most people. It seems likely that a Senate companion bill will be introduced.

Senator McCarran, with an impressive list of co-sponsors, has introduced a bill to help present producers of manganese, antimony, tungsten, and mercury.

Senator Malone of Nevada is expected to introduce a differential tariff bill to equalize costs at home and abroad on a sliding-scale, flexible basis. This idea has been kicking around for a long time. It may have merit, but it will get the cold shoulder from the Administration and does not stand a chance.

Still other ideas probably will be forthcoming, but these are all that have filtered out West to date.

● Exploration Bill Approved

The new Engle exploration bill (H. R. 5725), which really is the exploration features of the Murray-Engle bill, was promptly reported favorably by the House Public Lands Committee with only two changes. The amount of the appropriation was raised to \$20 million per year and a limitation of \$250,000 was put upon the amount of money which can be furnished to any applicant in any one

Notice of Intention to Hold Mining Claims

According to the Bureau of Land Management, a mining claim owner claiming exemption under the recent assessment work moratorium should have stated the amount of annual assessment work performed in 1949 in the Notice of Intention to Hold which he filed with the county recorder. In addition, in order that the local record will be complete, it is advisable, when the notice of performance of assessment work for 1950 is filed to state again the amount of work performed in 1949 for which credit is being claimed in 1950 under Public Law 107.

year. However, it is understood that the Rules Committee has decided to table the measure until next January, even though it seems to be in line with the President's program.

● Late News

Last minute information indicated that the Truman Administration would authorize the Government to share the cost of exploration for metals and minerals when it put its stamp of approval on a "compromise" mine subsidy bill sponsored by Wyoming's Senator O'Mahoney. Previously the O'Mahoney measure was endorsed by the Interior Department and the Bureau of the Budget. O'Mahoney expressed the opinion he is "satisfied that the bill will meet with the approval of the President, if passed by Congress."

Furthermore, the measure would allow the Government to purchase submarginal mine production at prices permitting them to continue operation.

California's Representative Clair Engle, the sponsor of a House bill that would provide aid to the mining industry, indicated that he will await Senate approval of the O'Mahoney bill before undertaking a new move.

● Overtime-On-Overtime

Getting the President's signature on the "overtime-on-overtime" bill came as a pleasant surprise to many in the mining industry. It crowns a struggle long carried on by the American Mining Congress, among others.

● It's An Ill Omen

The House has passed a bill to continue the suspension of duties on scrap metal. This does not look good for those who want to increase metal tariffs.

● Subcommittee Is Named

Senator O'Mahoney, chairman of the Senate Interior and Insular Affairs Committee, in the first week of August appointed a subcommittee to consider the various mine incentive payment bills before his committee. O'Mahoney, himself, is chairman and Senators Murray, Kerr, Malone, and Watkins are members. Already there has been an attempt to rewrite S. 2105, the O'Mahoney-Interior bill, but what suits Interior doesn't suit the Munitions Board, and so on ad infinitum.

● Senator Thomas Subsides

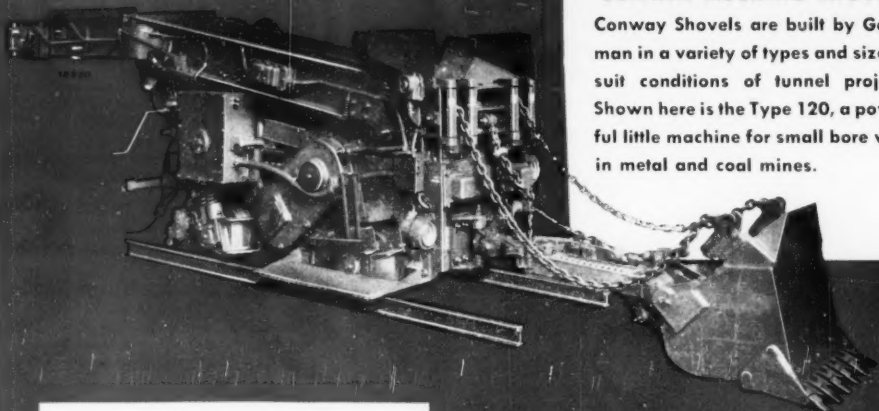
Senator Thomas of Oklahoma, fighting in the Appropriations Committee to hamstring the Stockpile Program by cutting its funds from \$835 million to \$200 million, gave up

Continued on Page 63

SPEED and CAPACITY *for* **TUNNEL WORK**

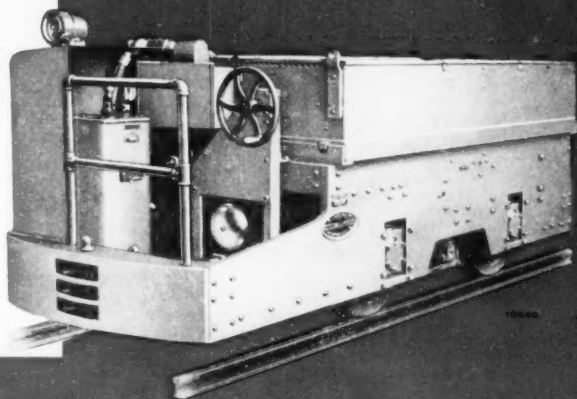
CONWAY MUCKING SHOVELS

Conway Shovels are built by Goodman in a variety of types and sizes to suit conditions of tunnel projects. Shown here is the Type 120, a powerful little machine for small bore work in metal and coal mines.



GOODMAN LOCOMOTIVES

Fast hauling of heavy loads is provided for Conways by Goodman locomotives. They are available in trolley, storage battery or combination types. The storage battery unit illustrated here is in the 10 ton class and is powered by two 45 hp motors for operation at 110 volts.



Send for descriptive bulletin CL-491

HALSTED ST. AT 13TH

GOODMAN
MANUFACTURING
COMPANY

CHICAGO 9, ILLINOIS



New structures housing the crusher and mill. Crushing machinery is in the building at the right, the mill is the one to the left. Both buildings are of modern steel construction with concrete floors.

MAGMA COPPER'S NEW MILL

Designed and constructed to provide maximum output for a convertible copper-zinc flotation circuit, the installation warrants study by millmen

The new crushing plant and mill of the Magma Copper Company at Superior, Arizona, embraces an unusual number of departures from conventional design. Capacity of the crushing plant is 200 tons an hour, of the concentrator 1,500 tons daily. The new plants replace a concentrator built by the company in 1914. Comparison of methods and results between the old and new flowsheets will figure in this paper.

Halder J. Rex is superintendent of the mill and is on the job at all hours endeavoring to smooth out the bugs inherent in a new operation. He is assisted by F. T. Davis.

Unusual Features

A central station for the crushing plant operator equipped with 28 switches that operate on pushbutton stop and go principle permits complete control of the machines and belt conveyors at a switchboard about 30 x 48". Standing on his platform, the operator has a clear view of all the moving elements and equipment in the plant and can stop instantly any of the conveyors or machines whenever trouble arises. All belts and crushers are interlocked.

Both crusher and mill are housed in modern steel buildings. The concentrator is 105 x 225' and the crusher 36 x 104'.

One of the features of the new mill is the ease with which it can be kept clean. Throughout the mill grating floors are used. All crushers, screens and the transfers from belt to belt in the crushing plant are hooded to collect dust. For this purpose air-tight housing is built around each crushing

plant unit. Flotation mill floors are constructed with enough slope— $\frac{3}{4}$ " per foot—to permit hosing them down into a sump. The ball mill floor is provided with a trench that slopes toward a common center with a settling box provided to catch spilled material and the floor slopes $\frac{1}{2}$ " to the foot. All spillage is drained into one sump. This is one plant where a vacuum cleaner is a prime house-keeping machine, for one is used periodically to clean control panels, switch boxes and other precision instruments.

Another unusual feature of this mill is an Esperanza-type classifier installation for regrinding rough con-

centrates. Consideration was given to several types of machines, but the decision favored the Esperanza for the Magma ore.

The new zinc section, still in course of being equipped, is to be laid out for two-stage grinding. As the feed going into this section will vary radically, the tentative flowsheet is arranged so that in a couple of hours it will be possible to change over for handling copper ore. In time only copper ore will be processed in this section as the upper workings of the mine contain the zinc-rich orebodies. The zinc conditioner cells will embody another departure from ordinary practice as they will be regular



These two men have the operation of the new crushing plant and mill in their care. They are F. T. Davis, assistant mill superintendent, who designed the Esperanza classifier described in the article, and Halder J. Rex, mill superintendent.

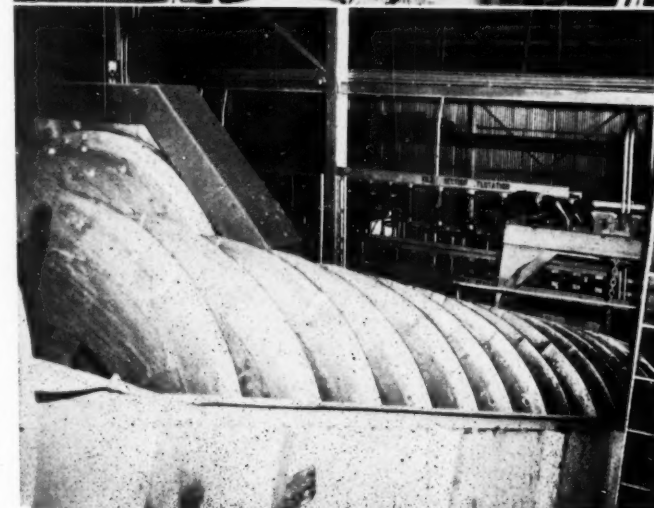
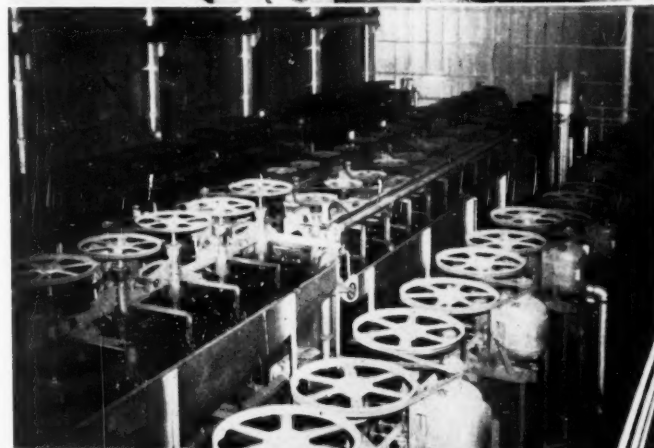
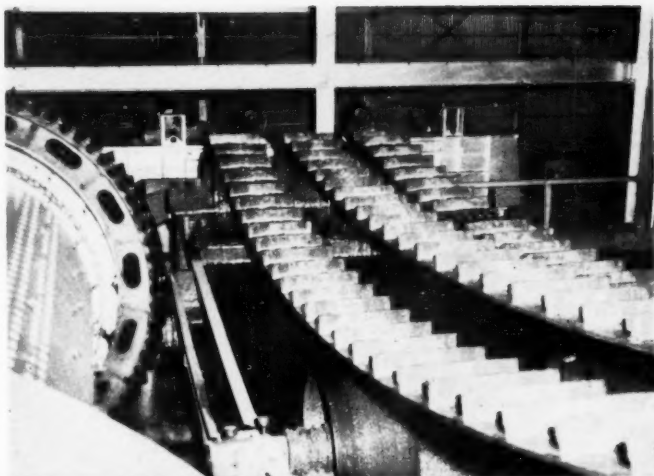
flotation cells equipped with ship-type impellers using no air instead of the conventional rotors.

Cyclones draw the dust into a Multiclone type 9 VG 12-25-5 dust collector that is equipped with a vibrator to keep the dust from packing in discharge bins. A device is employed to pulp the dust by spraying jets of water into a cone and the pulp is pumped to the classifier and passed to the flotation cells. Fine ore feeders maintain a steady supply of feed for the ball mills and Merrick weightometers keep constant check on the input.

Such a minor nuisance as handling mill balls is largely eliminated by providing cars to weigh them after unloading from railroad cars, hoisting the small cars by inclined hoist to the loading deck—located above the level of the mills—and dumping them into concrete hoppers that permit gravity movement to the ball mills.

Crushing Plant

Today only copper ore is being crushed, although copper - zinc ore



TOP

Esperanza-type classifier treats the rougher flotation concentrate from the copper circuit. It works in closed circuit with a 5 x 10' Chalmers-Williams tube mill.

CENTER

Gallagher Agitair flotation cells in action in the Magma mill. These cells are in the present copper flotation circuit. The same type of cell—36"—will be installed in the mixed ore section of the mill to handle copper-zinc ore.

BOTTOM

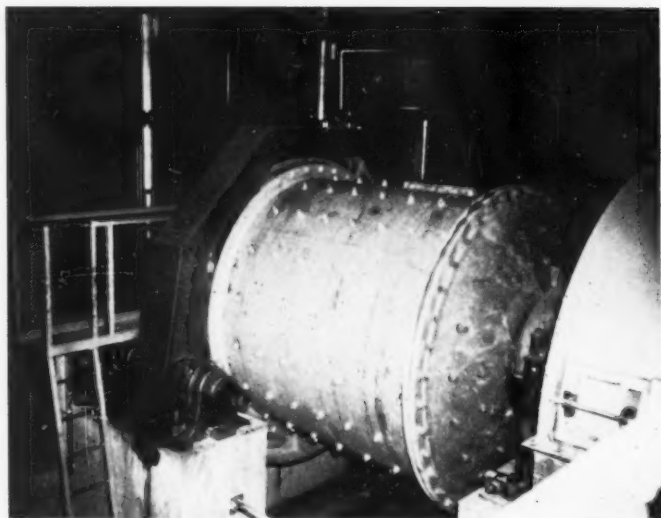
Akins classifier working in closed circuit with 8' x 7' Allis-Chalmers grate-type ball mill. This 72" classifier serves the purpose well.

exists in certain sections of the mine and the third section of the mill—still under construction—will be designed to treat this portion. The capacity of the crushing plant is 200 tons per hour.

Principal copper minerals in declining order of abundance are chalcocite, bornite and enargite. Some pyrite and hematite is present, and gangue rocks and diabase and schist. Average copper content of the ore in 1948 was 6.342 percent.

Ore is brought from the mine to the mill in A-bottomed 4-ton cars, 12 cars making up a train. The muck passes a 10" grizzly in the mine and is dumped into a receiving bin of 1,000 tons capacity.

Tramp iron detectors are set up at two stations to pick up scrap iron. One, a Dings type-D 42" model, is installed ahead of the primary jaw crusher to pick up drill steel and other heavy pieces. A Dings magnetic pulley is set up ahead of the scalping screen at the secondary crushers. Here such light pieces as escape the detector are taken from the broken



One of the Allis-Chalmers 8 x 7' grate-type ball mills that is charged with minus $\frac{3}{8}$ " feed by belt conveyor feeding from a 1,600 ton bin.

ore as well as any other material that may be harmful to the reducing machinery.

Pan feeders, 24" wide, carry the ore from the bins to belt conveyor No. 1, a 30" belt, 516' long, that transfers the material to conveyor No. 2, a belt 42" in width, 170' long. Mounted above this belt is the Dings tramp iron detector that detects ferrous scrap before it enters the primary crusher. Upon discharging from No. 2 conveyor, the ore crosses a grizzly set to 3 $\frac{1}{2}$ ". Undersize is conveyed to the scalping screen and the oversize falls to the 18 x 36" primary crusher, a Traylor jaw, that reduces the ore to minus 3".

Secondary Crushing

From the primary crusher the ore travels by a 30" belt conveyor, 156' long, conveyor No. 4, to a 5 x 10' Ty Rock double deck scalping screen with 1 $\frac{1}{2}$ " and $\frac{3}{8}$ " openings, the undersize falling onto a 30" belt conveyor 103' long, No. 9 (see crusher plant flowsheet). This conveyor transfers the crushed ore to No. 10, a 30" belt 300' long, which, in turn, delivers this cut of the ore to the concentrator ore bins.

After passing the scalping screen, the oversize goes to conveyor No. 5, 30" wide and 110' long, and is put through the secondary crusher, a Symons 4' standard cone set at $\frac{1}{2}$ ". Leaving the crusher, the ore is carried by belt conveyor No. 7, 36" wide by 173' long, to two single deck Ripl-Flo screens with $\frac{3}{8}$ " openings. Undersize joins the minus $\frac{3}{8}$ " ore from the Ty Rock screens and is sent to the concentrator bins via conveyors Nos. 8, 9 and 10.

Oversize from the above mentioned

operation is conveyed by belt No. 6, 30" wide and 177' long, to the tertiary crushers, two Allis-Chalmers Type R crushers set to 5/16". The discharge from the tertiary crushers combines on conveyor No. 7 with the discharge from the secondary crushers, passes again over the Ripl-Flo screens and is transferred to the concentrator fine ore storage bins by conveyors Nos. 8, 9 and 10, all of which are 30" belts.

Two fine ore bins of 1,600 tons capacity each receive the final product of the crushing plant which constitutes a minus $\frac{3}{8}$ " mill feed.

The Mill

The mill is divided into three sections, two copper sections that are in operation and a mixed ore section that is in course of being equipped. Of these the two copper sections were in operation at the time of MINING WORLD's visit to the property. The mixed ore section was still being outfitted, although the 46 Galigher Agitair flotation cells were in place.

Resuming the course of the sized ore through the mill, fine ore feeders in two batteries of two each, one ore onto belts that run over Merrick Type-S constant feed weightometers. Passing the weightometers, the ore is fed to two 8 x 7' Allis-Chalmers grate-type ball mills operating in closed circuit with 72" Akins classifiers. Each section of the copper circuit is equipped with 46-36" Galigher Agitair flotation cells, arranged as follows:

Galigher Agitair Cells

The flotation circuits are noteworthy as they are composed entirely of Galigher Agitair 36" flotation cells. Each of the two copper circuits is

made up of 46 cells divided into five banks—two banks of roughers of 10 and 8 cells each, one bank of cleaners of 10 cells, and two banks of scavengers of 10 and 8 cells each. (See flowsheet.)

Pulp goes from the Akins classifiers to the first bank of 10 rougher cells. The floated product from the first bank is pumped to a 7'-6" x 30' Esperanza-type drag belt classifier in closed circuit with a 5 x 10' tube mill. Classifier overflow goes to cleaner cells, these in turn running the floated concentrate to a 45' diameter Dorr thickener.

Pulp from the first bank of Agitair rougher cells passes to the second bank, the concentrate recovered from here joining the fresh pulp from the classifier and circulating in closed circuit with the two banks of rougher cells.

After treatment in the second bank of rougher cells, the pulp passes to the scavengers, the first bank made up of 8, the second of 10 cells. The floated product from the first bank is returned to the second bank of rougher cells for treatment, the pulp passing to the second bank of 10 scavengers, there to be discharged to tailings. Floated product returns to the first bank of scavengers.

In the mixed ore the metallurgy will be somewhat more complex, and the flowsheet still is in a somewhat formative stage, but the flotation circuit is worked out. As the heads will be a mixed copper-zinc feed, the first bank of 10 cells will be devoted to copper flotation. Floated product from this bank will pass over a split launder, the richer split going directly to a Dorr thickener and then to the smelter filter plant, the other returning to the head of the circuit for recirculation. Tailings from the copper circuit containing zinc mineral will pass to a bank of four Agitair conditioner cells for conditioning and then to a bank of 10 roughers. The floated product will flow to the bank of six recleaner cells, the pulp to the 10 zinc scavenger cells. A split launder at the scavengers carries one cut of the richer floated product to a bank of six zinc cleaner cells, the other leaner fraction returning to the four cell conditioner bank. Pulp will pass from the scavenger cells to tailings.

In the Agitair recleaner zinc bank the floated product from the first three cells and a laundered split of the second three will go directly to a 22' diameter Dorr thickener, passing next to 20' diameter by 8' Goldfield tank, filtered, and thence to railroad cars for shipment to the reduction plant. The leaner launder split will be returned to the cleaner bank for recirculation.

Scrap wood constitutes a nuisance in the metallurgical circuit. Therefore, this material is picked out of the ore at three stations in the crusher house and mill before entering the flotation circuit. The first picker re-

covers large pieces of wood from the No. 1 conveyor belt, the crusher operator picks other pieces from the slow-moving belt as it passes his platform before the ore enters the crusher, and chip scrapers sweep the finer pieces from the pulp as it overflows classifiers.

Esperanza Classifier

The Esperanza-type drag classifier, operating in closed circuit with a 5 x 10' Chalmers & Williams tube mill, treats the rougher flotation concentrate. This classifier was designed by F. T. Davis, metallurgical engineer, and has proved to be a satisfactory installation.

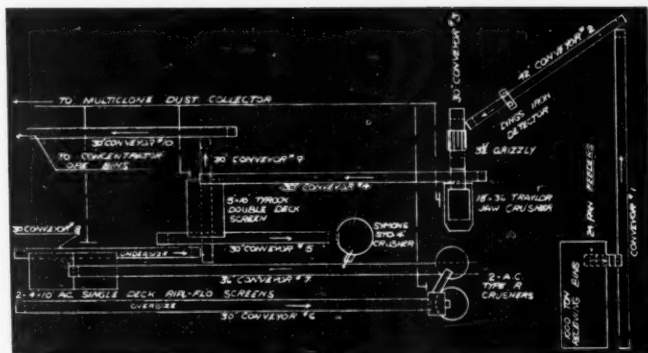
The classifier is 33' long, 7'6" wide, and the bottom is engineered as a catenary curve. Three continuous 18" belts equipped with 4" rakes keep the oversized material circulating through the tube mill. The belts are powered by a 5-hp. D.C. motor that operates at a speed that can be varied from 20 to 60 fpm. Pool area of the classifier is about 160 sq. ft. and maximum depth of pool is 16".

Capacity of the Esperanza is rated at 400 tons per day of 75 percent minus 200 mesh feed, the resulting product being a pulp that averages 99 percent minus 200 mesh.

The tube mill is charged with 3/4" balls and serves as a regrind circuit for the present mill.

Sampling Practice

Automatic Geary - Jennings samplers keep watch on the flow of the pulp and concentrate in no less than six stations in each of the two sections of the mill. The first sample is cut between the Akins classifier and the rougher flotation cells and represents the run of mine ore. Other samples are cut as follows: A pulp



Crushing plant flow sheet, Magma mill.

sample between the Esperanza classifier and the cleaner cells; a concentrate sample following each bank of cleaner cells; a composite concentrate sample ahead of the Dorr thickener; a tail sample for each bank of scavenger cells; and a composite tail sample.

In the mixed ore section the flow-sheet also will be well policed by automatic samplers. The first sample will be cut between the Akins 60" classifiers and the copper flotation cells, followed by a pulp sample taken between the copper and zinc circuits. Zinc-rich pulp from the copper cells will be sampled separately en route to the zinc conditioner cells, after which it will join the laundry split from the zinc scavenger cells and the zinc cleaner cells for another composite sampling before re-entering the zinc conditioner cells. A fifth sampler will cut across the flow after

the pulp from the zinc cleaner cells and the launder cut from the re-cleaner cells join. Copper concentrates will be sampled before joining the composite concentrate flow from the other sections of the mill and zinc concentrates will be sampled ahead of the thickener. Tailings will be sampled in much the same way as the concentrates—a sampler ahead of the composite cut of tailings from the other sections.

Concentrates are assayed by the short iodine method, while photocolometric tests are conducted on tailings determinations. Testing of concentrates is done once a shift and tailings determinations are run once a shift.

One of the biggest problems of operating at Magma is that of water for the mill, the supply needed to keep the mill running totaling 800 gallons per minute. More than 70 percent of the water used is recirculated. Overflow from the Dorr thickeners is pumped to water storage tanks. The tailings pond furnishes more than one-half of the recirculated water from tailings that are run by gravity to the pond and distributed by pipe instead of launders.

Recovery and Milling Data

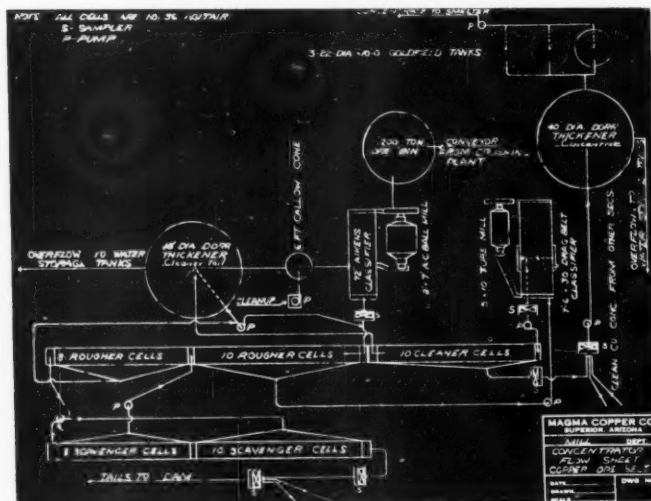
The average mill head in 1948 was 6.342 percent copper. Grade of concentrates sent to the smelter averaged 28.572 percent copper and tailings contained 0.1879 percent copper. Hope is entertained that a better result will be attained in the new mill, but so far it has not been reached.

Reagents employed are few in number and are set forth with average amounts consumed per ton and their uses in the following table:

American Cyanamid 404, collector	0.089 lb.
American Cyanamid 301, collector	0.007 lb.
Methyl Amyl alcohol, frother	0.080 lb.
Lime, conditioner	6.261 lb.

Ball consumption runs about 1.5 lb. per ton, while liner wear is described as nominal. The rougher regrinding circuit consumes about 0.3 lb. of balls per ton.

Concentrator flow sheet of the copper ore section, Magma mill.





Left to right: William J. Coulter, general manager, Climax Molybdenum Company, and chairman, Program Committee, 1949 Metal Mining Convention, American Mining Congress; Stanley A. Easton, president, Bunker Hill & Sullivan Mining & Concentrating Company, and chairman, Western Division, American Mining Congress; Robert W. Hardy, president, Sunshine Mining Company, and chairman, General Arrangements Committee, 1949 Metal Mining Convention, American Mining Congress; Howard I. Young, president, American Zinc, Lead and Smelting Company, and president, American Mining Congress.

SPOKANE TO BE 1949 AMC HOST

Interest-catching AMC program outlined for Northwest will show how to cut costs and improve recovery on many mining and milling problems

The program for the 1949 Metal Mining Convention of the American Mining Congress to be held at Spokane, Washington, September 26-28, is nearing completion rapidly. Nine sessions will be given over to discussion of legislative, economic and operating problems of the metal and nonmetallic mining industries. Some 1,500 to 2,000 mining men from all parts of the United States and from Canada are expected to attend the meeting.

The Convention will be opened on Monday morning, September 26. Following invocation by the Very Reverend Francis E. Corkery, S. J., president of Gonzaga University, Mayor Arthur Meehan of Spokane will greet the delegates. Robert M. Hardy, president, Sunshine Mining Company, Yakima, Washington, who is chairman of the convention's General Arrangements Committee, will respond for the mining industry.

Light on the Precious Metals

The first session will feature discussions on "Prospects for Nonferrous Metals" by Dr. Joseph Zimmerman, Editor-in-Chief, Daily Metal Reporter, New York; "The Status of Strategic Minerals" by John D. Bradley, vice president, Bradley Mining Company, San Francisco; "A Free Market for Gold" by Joseph Stagg Lawrence, vice president, Empire Trust Company, New York; and "The Future of Silver" by Ross D. Leisk, general manager, Sunshine Mining Company, Kellogg, Idaho.

At this session, also, the Resolutions Committee will present its proposed resolutions on General Policy, Gold, and Monetary Policy for consideration by convention delegates.

A Welcoming Luncheon for convention visitors will be held Monday noon in the Spokane National Guard Armory and will be presided over by Stanley A. Easton, president, Bunker Hill & Sullivan Mining & Concentrating Company, Kellogg, Idaho, who is Chairman of the Western Division of the American Mining Congress.

A welcome to Washington will be

extended by Governor Arthur B. Langlie of the State of Washington, and Ralph W. Diamond, vice president and general manager, Consolidated Mining & Smelting Company, Ltd., Trail, British Columbia, will extend greetings from the Canadian mining fraternity. Brief responses will be made by Howard I. Young, president, American Zinc, Lead & Smelting Company, St. Louis, who is president of the American Mining Congress; William J. Coulter, general manager, Climax Molybdenum Company, Denver, chairman of the Program Committee for the convention; and J. H. Fulford, vice president, Jeffrey Manufacturing Company, Columbus, Ohio, chairman of the Manufacturers Division of the American Mining Congress. Herman W. Steinkraus, president, Bridgeport Brass Company, Bridgeport, Connecticut, and president of the Chamber of Commerce of the United States, will address the luncheon session on "Labor-Management Relations Today." A nationally known industrialist, Mr. Steinkraus is also noted for his constructive views on the relations between workmen and management and on sound labor legislation.

Labor and Legislation

In the afternoon, labor relations

Left to right: Roger O. Oscarson, secretary, Northwest Mining Association, and vice chairman, General Arrangements Committee, 1949 Metal Mining Convention, American Mining Congress; Julian D. Canover, executive secretary, American Mining Congress.



and mining legislation will be considered. James K. Richardson, Manager, Utah Mining Association, Salt Lake City, will outline "Significant Developments in Mining's 1949 Wage Negotiations," and "The Communist Menace in Labor Unions" will be described by Robert E. Vivian, American Metal Market, New York. The Resolutions Committee will present its report on Labor Relations for discussion and adoption.

This session will be highlighted by an address by Senator Pat McCarran of Nevada, chairman of the Conference of Western Senators, on the subject of "Mining Legislation in the 81st Congress."

Milling Progress

Another afternoon session will be devoted to milling progress. At this session, Nathaniel Herz, chief metallurgist, Homestake Mining Company, Lead, South Dakota, will present "A Perspective of Milling Operations." "Improved Flotation from Crushing Plant Change" will be described by J. J. Burns, mill superintendent, Edwards Division, St. Joseph Lead Company, Balmat, New York, and will be discussed by E. B. Jennings, general superintendent, Universal Exploration Company, Jefferson City, Tennessee; and the "New Sink-Float Plant at Sullivan Concentrator" will be described by H. R. Banks, mill superintendent, Consolidated Mining and Smelting Co., Chapman Camp, British Columbia.

Spokane's Natatorium Park will be the site of a "Mining Jamboree" on Monday evening at which an A-1 box supper, supplemented by hot food, will be served and a sparkling floor show provided.

Mine Taxation

The second day of the meeting will be highlighted by consideration of mine taxation in the United States and Canada, exploration incentives for metal mines, stockpiling of strategic and critical minerals, tariffs and trade agreements and their effect on the mineral industry, problems of

small mine operators, and improvements in mining practice and mechanization.

At a morning session principles applicable to tax treatment of new mining ventures and producing mines will be discussed by V. C. Wansbrough, executive director, Canadian Metal Mining Association, Toronto, and S. H. Williston, vice president, Cordero Mining Company, San Francisco. Domestic producers have expressed particular interest in the recognition given to mining under the Canadian tax system, and this subject will be fully explored. The need of removing tax deterrents to investment in and exploration and development of mines will be further discussed by Paul B. Jessup, vice president, Day Mines, Inc., Wallace, Idaho; Mord Lewis, Anaconda Copper Mining Company, New York; and Donald H. McLaughlin, president, Homestake Mining Company, San Francisco. Industry policy with respect to taxation, social security, and governmental expenditures will then be considered, based on a report by the Resolutions Committee.

Exploration Incentives

A presentation of industry viewpoints on exploration and production incentives for mining will feature addresses by A. E. Petermann, general counsel, Calumet & Hecla Consolidated Copper Company, Calumet, Michigan; W. C. Page, assistant general manager of western operations, U. S. Smelting Refining & Mining Company, Salt Lake City; and Henry L. Day, president, Day Mines, Inc., Wallace, Idaho. Stockpiling of strategic and critical minerals and metals and governmental policies relating thereto will be discussed by Ward M. Canaday, consultant, National Munitions Board, Washington, D. C. At the close of this session the Resolutions Committee will present its recommendations on tariffs, stockpiles, and mine incentives.

Small Operators Session

Special attention is being given to the small mine operators and a full convention session on the afternoon of the second day will be devoted to the problems of this important branch of the mining industry. Subjects to be considered include labor relations, mine mechanization, financing, accounting, and functions of the mining engineer. The following will speak on the subjects noted: Roger V. Pierce, consulting mining engineer, Salt Lake City, on "Mechanization"; J. C. Kieffer, manager, Spokane-Idaho Mining Company, Osburn, Idaho, on "Labor Relations"; James E. Hogle, assistant general manager, Rico Argentine Mining Company, Rico, Colorado, on "Accounting"; Dr. Francis A. Thomson, president, Montana School of Mines, Butte, Montana, on "Functions of the

Mining Engineer"; and Carl J. Trauterman, secretary-treasurer, Mining Association of Montana, Butte, together with James Newton, regional administrator, and Ellsworth Y. Dougherty, mining engineer, Securities and Exchange Commission, Seattle, on "Financing." The session will be conducted as an open forum or clinic for consideration of the special problems involved at smaller mine operations.

Operating papers on September 27 will feature: "Diesel Engines for Auxiliary Power on Electric Locomotives at Ajo" by Alfred T. Barr, mine superintendent, Phelps Dodge Corporation, Ajo, Arizona, and a further discussion of this subject by H. L. Garrity, superintendent of mines, Kennecott Copper Corporation, Bingham Canyon, Utah; "Conveyor Belt Transportation" by Russell G. Haworth, assistant general manager, Potash Company of America, Carlsbad, New Mexico, with a discussion by C. A. R. Lambly, general superintendent, Pend Oreille Mines and Metals Company, Metaline Falls, Washington; and "Large Diameter Churn Drills" by William H. Goodrich, general manager, Kennecott Copper Corporation, Hurley, New Mexico.

Diesels Underground

Another operating session on Tuesday will feature diesel power underground shaft sinking, and applications of various types of rock drill bits. "Diesel Power Underground" will be discussed by S. S. Clarke, general superintendent of mines, Eagle-Picher Mining & Smelting Company, Cardin, Oklahoma, and Jack East, engineer in charge, U. S. Bureau of Mines, Denver. "Sinking Bunker Hill and Sullivan's Inclined Shaft" will be described by Joseph Gordon, assistant mine foreman, Bunker Hill & Sullivan Mining & Concentrating Company, Kellogg, Idaho. Participating in symposiums on insert bits and single pass bits will be J. J. Curzon, manager, Howe Sound Company, Holden, Washington; C. J. Abrams, general superintendent, Climax, Colorado; R. S. Hooper, mine superintendent,

Bunker Hill & Sullivan Mining and Concentrating Company, Kellogg, Idaho; R. R. Weideman, assistant general manager, Silver Dollar Mining Company, Spokane; J. S. McIntosh, mine manager, Sheep Creek Gold Mines, Ltd., Zincton, British Columbia; and G. L. Craig, director of sales and research, Calumet and Hecla Consolidated Copper Co., Calumet, Michigan.

Laws and Public Lands

Sessions on Wednesday, September 28, will be devoted to public land policies, the finding of mines in the future nonmetallic mining in the Northwest and health and safety.

A symposium on proposed revisions in the mining laws will be participated in by Marion Clawson, Director of the Interior Department's Bureau of Land Management, Washington, D. C.; Charles F. Willis, State Secretary of the Arizona Small Mine Operators' Association, Phoenix, Arizona, and Horace M. Albright, president of the United States Potash Company, New York. Following the symposium, the Resolutions Committee will present its views on public lands policy for consideration by the convention. "How Mines of the Future Will Be Found" will be outlined by Edward H. Wisser, consulting mining geologist, San Francisco, and other leaders in the exploration field.

Health and Safety

Included in the presentations on safety and health will be an address on "Handling the Underground Dust Problem" by Jack Warren, assistant ventilation engineer, Anaconda Copper Mining Company, Butte, Montana, and a paper on "Advances in Mine Safety" by Robert F. Wilson, supervisor of safety, Oliver Iron Mining Company, Duluth, Minnesota. Sheldon L. Glover, supervisor of the Division of Mines and Geology of the Washington State Department of Conservation and Development, Olympia, Washington, will outline problems involved in "Nonmetallic Mining in the Northwest"; and "Roof Bolting," a subject which is attracting wide attention, will be discussed by E. A. Morgan, mining engineer of

Continued on Page 83

State Chairmen

Alaska J. A. WILLIAMS Alaska Juneau Gold Mining Co.	Montana KUNO DOERR American Smelting & Refining Co.	Utah LOUIS RUCHMAN Utah Copper Division, Kennecott Copper Corp.
Arizona P. D. L. HONEYMAN Inspiration Consolidated Copper Co.	Nevada S. S. ARENTZ Combined Metals Reduction Co.	Washington JOHN J. CURZON Chelan Division, Howe Sound Co.
California H. A. SAWIN Yuba Consolidated Gold Fields	New Mexico G. F. COOPE Potash Co. of America	Tri-State and Mississippi Valley ELMER ISERN Eagle-Picher Mining & Smelting Co.
Colorado C. J. ABRAMS Climax Molybdenum Co.	Ore-on FAY L. BRISTOL Bristol Silica Co.	Lake Superior FERRY G. HARRISON Hanna Iron Ore Co.
Idaho J. B. HAFNER Bunker Hill & Sullivan Mining & Concentrating Co.	South Dakota N. P. GOODRICH Bald Mountain Mining Co.	Eastern GLAYD M. WILES National Lead Co.
	Texas RICHARD A. YOUNG American Zinc Co. of Illinois	Manufacturers J. H. FULLFORD Jeffrey Manufacturing Co.

HINSDALE COUNTY'S GHOST CAMP

Sixteen miles southwest of Lake City is a true ghost town—Sherman, altitude 7,500 feet. Not only are most of its cabins gone, but those that remain stand surrounded by the gravels and stones of a dry stream-bed. Over twenty-five years ago the greater portion of the little camp was washed away by a cloudburst which swelled Cottonwood Creek and sent it roaring down the canyon, to flood the flat where the town stood stretched along the sides of the stream.

Rumor says that several persons were lost in the seething flood waters and how any escaped seems a miracle, for today a deposit of clean, washed pebbles and stones, left by the flood, fans out of the canyon above the town for nearly an eighth of a mile in width and covers not only the original stream bed, but the meadows on either side of it. Growing out of tiny crevices between the stones, are tiny evergreens two and three inches high—the start of a new forest which in time may hide even the site of the once ambitious little camp.

The Lake City *Silver World* of May 26, 1877, speaks of the "new town of Sherman" at the junction of Cottonwood Creek with the Lake Fork of the Gunison River, and pre-

dicts that it "bids fair to become a thriving and prosperous place." Located by A. D. Freeman and others, the townsite, as shown in the plat, covered 93 acres. Blocks were laid out 300 feet by 400 feet; lots were 25 feet by 40 feet. Streets were to be 60 feet wide and alleys 20 feet.

By the end of May a dozen or more buildings were being hastily put up and others were "contemplated." By June 23, the town was "improving much faster than the most sanguine of its friends expected." One large building, to be used as a storage and forwarding house, was taking shape at the corner of Main and 6th Streets; a butcher was erecting a slaughter house and shop; another merchant had opened a bakery and restaurant and, "last but not least, H. Deatherage keeps a tent where a 'drop of the cratner can be had for the small sum of 25 cents.'" Yet with all this activity, by July 21, 1877, the paper remarks that the "town is not improving nor gaining in population as we had expected. . . . No doubt it will become a good mining camp in time."

By fall the miners were going out for the winter, yet "dull as the season has been . . . we will poll 50 votes at this place," wrote the Sherman correspondent to the *Silver World*.

Although prospectors had been

staking claims in the vicinity since 1877, little development of the properties was made until 1880 or 1881. The New Year's edition of the Lake City *Mining Register* of 1881 describes Sherman as "cozily nestled at the base of giant mountains that pierce cloudland. A thriving, busy little city with reduction works and mills will soon supplant the live, struggling, yet picturesque village of today."

In 1881 Crofutt, who visited all the boom camps of Colorado and boosted them in his *Grip-Sack Guide*, wrote of Sherman as follows:

"It is in a perfect forest of timber, with high mountains on each side, filled with the precious minerals—the 'Almighty Dollar' in its native home. . . . The Sherman House provides for the wants of the public, and a store full of general merchandise tempts the 100 citizens to spend their money at home. This is strictly a mining camp, both placer and lode mines. Work in the placers has been recently commenced, and prospect rich. The lode mines run gold, silver, copper and lead, prospect inexhaustible. The Black Wonder, Salamanca, Washington, Irish World, Rose, Golden Chance, etc., yield by mill runs from \$10-\$2,000 per ton. The ores in several of the above are ruby and brittle silver, with copper pyrites carrying gold. Most of the ores shipped go to Lake City for reduction, over a good toll road and easy grade, via Lake San Cristobal; fare \$2.50."

One of the most promising properties worked was the Mountain View Lode, but it was soon eclipsed by the Minnie Lee, the George Washington and the Black Wonder, which latter by 1882 was considered the best mine in the camp. Like many good properties it was soon tied up in litigation, but in time was producing again. Tier upon tier of foundations—all that are left of its big mill, climb the mountainside, and heavy pieces of machinery, half hidden by fireweed, still stand on the massive stone platforms built to carry their weight.

In 1940 I visited Sherman for the first time and looked in vain for the Sherman House which had advertised (in 1881) "Good accommodations for Travellers; Liquors, Wines, St. Louis Beer, Cigars, etc." I recalled the newspaper account of June 3, 1882, entitled "Sherman and the

Sherman, Colorado, as it is today, a true ghost camp. At one time a roaring mining camp, it died when the ore and placer gold played out. Now Sherman does not have a single inhabitant.

Sketch by Muriel Sibell Wolle



Exposition," which described an "enthusiastic and largely attended meeting of miners of the Sherman district" who met to make plans for their display at the Mining Exposition to be held in Denver. "Every effort is being put forth to make as creditable an exhibition as our sister camps. Ergo Henson Creek had better be looking after her laurels for they are in jeopardy as we are close behind her, and it will be no fault of our camp if we fail to pass her in the race for the first premium of Hinsdale County."

And as I walked about the camp, I recited the first two verses of a poem (consisting of 22 stanzas) which was written by a "poet" from Sherman and which had been printed in the Lake City paper on March 30, 1883, under the heading "Hang Him! The first batch of spring poetry mailed in this week."

The spring, the spring, the beautiful
spring,

It's hurrying in like everything
Today it shines, tomorrow it snows,
And that's the way the wide world goes.

The mountain tops are clothed in white,
The old prospector still gets tight
The burro winds around the hill
A-carrying ore to Crooke's big mill.


But even with poetry and mass meetings the little camp was dull every fall after most of the "boys" went out for the cold months, and the few tough and hardy miners and their families who dug in for the winter had to invent their own diversions. During the winter of 1884 "only two ladies and three children" remained in camp. But with spring the miners' spirits rose again and, as one of them put it, "With our Saturday evening prayer meetings and Sunday extempore concerts at Mrs. Franklin's and Mrs. Wager's we think business will revive and rush ahead like a burro with a light load on a downhill trail."

Up above Sherman, on Cottonwood Creek, were two smaller camps. Garden, or Gardiner City, was three to four miles above and was reached by a wagon road. Some work was still being done there as late as 1921. Seven miles up Cottonwood was Sterling, which was said to have had about thirty buildings. There was also some mining up Cataract and Cuba gulches. This summer I visited Sherman for the second time and, as I picked my way over the gray waste of boulders and jagged rocks which cover the townsite, I looked up the canyon where over forty years ago Mr. Ramsay of Lake City built a dam. "The company who hired me wanted it built 147 feet high," he told me three years ago when I talked to him about it. "By the time I'd built it 69 feet high the company went broke. Then another outfit wanted the dam raised some more. Later on the cloud-

burst took it out and left Sherman the way it is today. Before the dam went out there were a lot of buildings there."

In one empty cabin with buckling, warped floors, I found shelves with pigeon holes still nailed to the twisted wall. Perhaps it was the postoffice! And before I left the lonely townsite I climbed from level to level over the stone and brick foundations of the Black Wonder mill, with its rusting machinery and its rattle table bleaching in the sun. Just as I was ready to leave I picked up part of a golden-yellow brick which lay near the mill's

boiler and on which were stamped the words "St. Louis." That brick symbolized the vision and perseverance and dogged faith of the men who mined in the Rockies, hundreds of miles from cities like St. Louis, and who willingly paid the freighters \$1 apiece for hauling each brick over the mountains that they might build their furnaces and mills, for to them each camp was the embryo of a great city which would appear as soon as they found the mother lode of the district or hit a bonanza. Sherman failed to grow, and a cloudburst washed what little was there away.



Diamond Core drilling on contract is your key to lower operational costs.

Boyles Bros., leaders in the field of Diamond Drilling for over 50 years, are equipped to give you complete service in Exploratory and Blast Hole Drilling or Tunneling operations.

Mining men and contractors will find no job too big or too small for Boyles Bros., leading Diamond Drilling experts.

Full information on request

Boyles Bros.
DRILLING COMPANY

1321 SOUTH MAIN STREET • DIAL 6-8555 • SALT LAKE CITY

PROPOSED ALASKA RAILROAD DEFINITELY TIED TO TERRITORY'S MINERAL DEVELOPMENT

Readers of MINING WORLD will be interested to read the following article because Senator Magnuson has figured prominently in the attempt to provide a land route between the Pacific Northwest and the Territory of Alaska. The views presented herewith indicate that effort is still being expended in an attempt to bring the contemplated railroad to completion but that the first need is legislation to permit preliminary international negotiations.—Ed.

In Vanderhoof, British Columbia, members of the local and Fort St. James Boards of Trade got together and penned a telegram to President Truman.

This occurred in March, and they were directing their attention to proposals for extension of a railroad to Alaska. They referred to "foresight and commendable efforts" and went on to say:

"In central and northern British Columbia we have a vast unexplored area and many known deposits of lead, copper, zinc, mercury, antimony and other essential metals which would be made accessible by this project."

They addressed a copy of their wire to me: It struck me as a singularly ex-

By Warren G. Magnuson

United States Senator

pressive statement of the growing conviction that there is worth in the project.

This is a proposal that has bi-partisan sponsorship in the United States Senate. In this, and in the 80th Congress, Nebraska's Senator Hugh Butler has joined me in co-sponsoring the necessary legislation.

It should be emphasized at the outset that we have made only a beginning, and until there is action by both Houses of Congress, hardly that.

Canada-U. S. Agreement Needed

Among the many steps, there is the requirement for an international agreement between Canada and the United States before rails can be spun toward and into the Territory of Alaska. That, alone, will take time.

Perhaps the foremost need, however, is for a reliable economic report as to the feasibility of a railroad link to Alaska. We have aimed our legislation in that direction.

Much of the conjecture as to where we stand can be dispelled by reference to the two pieces of legislation before Congress. They are before the Senate Committee on Foreign Relations. Hence they are competing for attention with all other international legislation.

Senate concurrent resolution 13 is a statement of policy, and our first hope for attention. Senate bill 740 would be a beginning step toward eventual construction of a railroad connecting the existing system serving the U. S. and Canada and terminating at Prince George, B. C., with the system serving Alaska and terminating at Fairbanks.

Alaska Development Essential

Resolution 13 sets up a course of action for the President. It starts with a statement of reason, setting forth: that the development of Alaska, its lands and resources, is essential to the economic welfare and security of the nation, and that such development is necessary to the defense of the Territory.

It proceeds forthwith to call upon the President to start negotiations with the Canadian government looking toward determining the desirability and economic value of extending the existing system into Alaska.

In its second (and last) section, the resolution asks for the purpose of expediting its purposes, that the President utilize appropriate executive agencies, and proceed to present to Congress within sixty days estimates as to the cost of surveys to determine the economic feasibility of the road.

Surveys to Follow Appropriation

The President is asked to accompany the estimates with a request that funds for the survey be appropriated, and is to start the surveys when funds are provided. He is to submit to Congress, as soon as possible, a progress report on relations with the Canadian government, together with his own views on the economic phase of the project and whatever else he deems pertinent.

While this project deals with the 1,400-mile gap between Prince George, B. C., and the present Alaska Railroad which slants downward 470 miles from Fairbanks in the interior to the coastal points of Seward and Whittier, many people are alert to developments far to the South.

Would Affect Whole Continent

It is clear, I believe, that there are many serious decisions to be made, many steps to be taken, before the project could be started.

The first are the legislative steps. In the closing minutes of the 80th Congress we succeeded in winning Senate approval of a similar resolution. If the House had not adjourned at the very moment we were in that

View of the Fraser River, British Columbia, from the Pacific Great Eastern Railway south of Clinton.

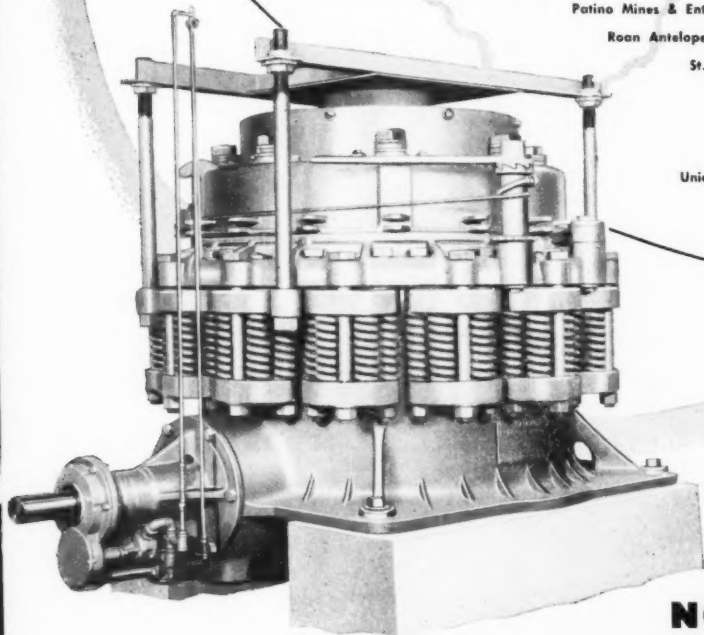


Throughout the World

REPEAT ORDERS prove the outstanding performance of SYMONS CONE CRUSHERS

The many repeat orders for Symons Cones are real evidence of the satisfaction given in fine reduction crushing service. The outstanding performance of Symons Cones in delivering a more finely crushed product in greater capacities and at lower costs makes them the choice of the world's outstanding mining companies, some of the repeat users being listed below.

Anaconda Copper Mining Co.
American Smelting and Refining Co.
Consolidated Mining and Smelting Co., Ltd.
Climax Molybdenum Co.
Cleveland Cliffs Iron Co. American Zinc Company
Cia Saliterra Anglo-Chilena Cerro de Pasco Copper Corp.
De Beers Consolidated Mines, Ltd.
Eagle Picher Mining & Smelting Co. Grootvlei Proprietary Mines, Ltd.
Hudson Bay Mining & Smelting Co. Hollinger Consolidated Gold Mines
Homestake Mining Co. International Nickel Co. of Canada
Jones and Laughlin Ore Corp. Lake View and Star Ltd.
Mt. Isa Mines Ltd. Mufulira Copper Mines, Ltd. Nevada Consolidated Copper Co.
National Lead Co. Newmont Mining Corp. N'Kana Mines, Ltd. Oliver Iron Mining Company
O'okiep Copper Co., Ltd. Outokumpu, O.Y. Phelps-Dodge Corporation
Patino Mines & Enterprises Cons. Republic Steel Company
Roan Antelope Copper Mines, Ltd. Sydvaranger A/S
St. Joseph Lead Co. Braden Copper Company
Tennessee Coal, Iron & Railway Co.
U. S. Smelting, Refining & Mining Co.
Utah Copper Company
Union Miniere du Haut Katanga
Venterspost Gold Mining Co., Ltd.
Zinc Corporation, Ltd.



M849

Symons Cone Crushers are available in three types—Standard, Short Head and Intermediate—in a wide range of sizes to fit your requirements. Other Nordberg machinery for the mining industry includes: Primary jaw and gyratory crushers, grinding mills, screens, grizzlies, feeders, hoists and Diesel engines. Write for information on the equipment you need.

NORDBERG MFG. CO.
MILWAUKEE 7, WISCONSIN
NEW YORK • SAN FRANCISCO • WASHINGTON • SPOKANE
MEXICO, D.F. • LONDON • TORONTO • JOHANNESBURG

NORDBERG

*Machinery for processing
ores and
industrial minerals*



Gyratory and Jaw Crushers



Symons Cone Crushers



Vibrating Screens and Grizzlies



Grinding Mills



Diesel Engines



SENATOR WARREN G. MAGNUSON

debate in the early hours of the morning, an expression of Congressional intent would very probably exist now.

It is my hope that this Congress will act, and I am pressing for action on the proposals.

Even then, considerable time is involved. But some sense of whether the proposal is logical may be gained by reflecting on a further fact. If the war in the Pacific, and the Aleutians, had taken a different trend, there might now exist a railroad to Alaska, built under the exigencies of threatened invasion.

That threat provided short-cuts to several decisions. It revealed that a railroad can be built, that there is—

from military standpoints—a feasible route, among other things.

Army engineers conducted their survey in 1942. Their objective was the determination of a passable rail route via the Rocky Mountain trench from Prince George to Fairbanks.

It is now possible to report their findings, in part.

To Join Up at Kobe

In describing the route generally, they indicated that a good junction point with the Alaska Railroad to the north would be at Kobe, Alaska, some 85 miles south of Fairbanks. They located a route about 250 miles inland and about parallel to the coastline of Alaska, running from Prince George, B. C., to Kobe.

From Prince George it progressed on an air line distance of about 570 miles to Fort Frances, Yukon Territory, then turned toward Kobe for an additional air line distance of 650 miles. It did not deviate from these two general courses by more than 30 miles in the entire length of 1,417 miles.

Total estimated cost—in wartime—was under \$112,000,000. This envisaged construction in some 400 days, and employment of a force of 16,937 men. Even under the stress of military requirements, however, this was admittedly a "very optimistic" schedule.

Relatively Straight Route

The engineers viewed the route as proceeding through the trench from Prince George to its northern terminus. The trench they found to be relatively straight, a narrow valley at the foot of the western slope of the Rockies. Mean elevation of the trench floor was 2,500 feet above sea level. Highest point on the route, 3,273 feet,

is at the summit of Sifton Pass, 350 miles above Prince George.

All in all, the whole route is favorable for a railway line, they found. Grades are relatively easy, and the valleys allow for satisfactory alignment. Little rockwork, little soft ground, and a two percent maximum grade line were factors auguring for rapid construction.

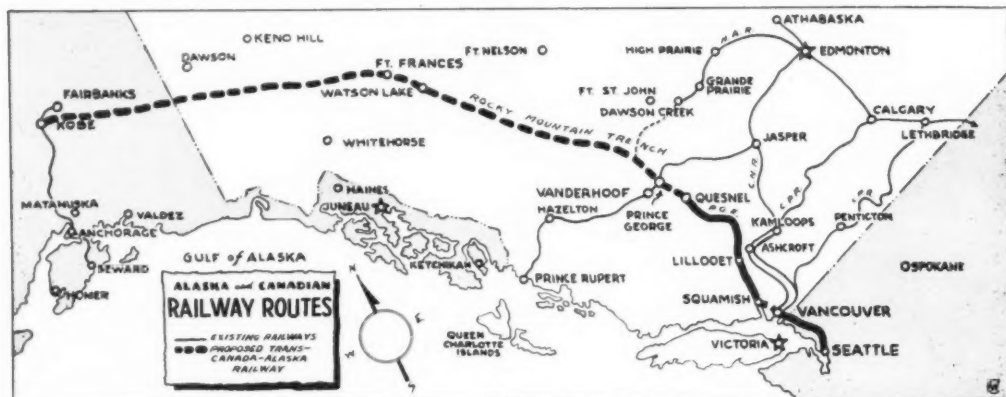
At this writing I have hopes of meeting in the near future with Premier Byron I. Johnson of British Columbia. Such a discussion should afford an opportunity for a mutual exchange of views, and pave the way for future meetings of representatives of both Canada and the U. S.

In anticipation of such a meeting, I have advised Premier Johnson that my interest is solely that of a public official who hopes our two governments may cooperate toward the realization of such a project, and that if agreements can be reached under which private financing could participate, there is no objection on my part.

Some of the questions that have been raised, regarding how the road should be built and financed, cannot be met until there has been such international discussion. It has been suggested that a joint international commission might direct the project. There has been no meeting, hence no possible meeting of minds on this aspect. We can refer to experience with international commissions, however, and the fact that in such fields of mutual importance as fisheries they have done splendid work.

In such an undertaking, federal agencies such as the defense establishment, the State Department and the Interior Department are concerned. To provide them with the authority and stimulus needed, an expression of congressional intent is essential.

Favorable route for a railroad linking the United States with Alaska is indicated by the heavy dotted line. The British Columbia government is extending the Pacific Great Eastern Railway from Quesnel to Prince George. Construction of the Alaska railroad would continue from this point. To eliminate the water connection between Vancouver and Squamish bids are to be called soon for the construction of a highway to link the two cities by land.



**SIMPLE
RELIABLE
DURABLE**

Pacific

Quick Opening
SHEAVE BLOCKS

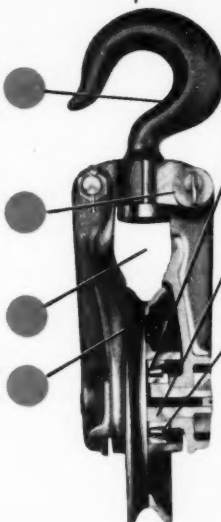


Alloy steel hooks, shackles and yokes assure extra strength with a high factor of safety. Available with safety swivel shackle, hook or standard shackle.

Quick-opening "snatch block" construction provides a fast, simple means of inserting or removing the wire line — no tools are needed. With toggle-pen removed side plate remains in proper position.

Wide throat will pass fittings, splices or square knots in wire line.

Sheave rims are recessed into side plates to prevent rope fouling and to reduce rope wear.



Manganese steel sheave, ideal for the application, provides great strength and resistance to wear — greater sheave life — easier on the wire line.

Manganese steel side plates assure extra strength and long service life — extra protection for wire line.

Heavy duty anti-friction roller bearings provide smooth, free-running sheave operation — sealed to prevent the intrusion of dirt and to retain grease.

Write for **BULLETIN 130**

ALLOY STEEL & METALS CO.

1862 EAST 55th STREET • LOS ANGELES 11, CALIFORNIA



Bear Brand Xanthates

Z-3 POTASSIUM ETHYL

Z-4 SODIUM ETHYL

Z-5 POTASSIUM AMYL

Z-6 POTASSIUM PENTASOL AMYL

Z-8 POTASSIUM SEC. BUTYL

Z-9 POTASSIUM ISOPROPYL

This series of fine collectors is continually being developed and expanded to meet the problems of ore concentration throughout the world. We invite your inquiries concerning flotation concentration.

GREAT WESTERN DIVISION
THE DOW CHEMICAL COMPANY

SAN FRANCISCO 4, CALIFORNIA, U. S. A.

PIONEER PRODUCERS OF XANTHATES FOR METALLURGICAL USE

GRAB SAMPLES—From the Mail

An Interesting Publication

Dear Sir:

I wish to state that copies of **WORLD MINING** are received by me regularly and are very much appreciated indeed and I certainly wish to continue receiving copies.

WORLD MINING is passed on to other members of my staff and has a good circulation.

I find your publication interesting and most readable.

M. R. Goldick,
Concentrator Superintendent
Roan Antelope Copper
Mines, Ltd.
Luanshya, Northern Rhodesia

Tin Situation

Dear Sir:

A copy of your May issue is now circulating this Office and I have just read the extremely interesting article "Tin, a World Anxiety," which is a concise summing up of the situation as seen by most of us here.

Is it possible to secure a copy of the full issue or, alternatively, the article?

J. H. Giles
Engineer in Charge
Anglo-Oriental (Malaya)
Limited
P. O. Box 300
Kuala Lumpur, Selangor

Attention, Dredgemen

Dear Sir:

The articles that interest me most in **MINING WORLD** are those which refer to dredging, draglines and shovels, and other plants used in placer (or as we call it alluvial) tin mining, including concentrating plants. There is little tin lode mining here.

I was particularly interested in your article on "Life for Colombia's Dredges." We discarded the rivetted and renewable lips some years before the war and use the cast integral lip, building this up to full height continually as buckets are removed from the band for rebushing.

We also use a locking device for the heads of the bucket pins which stops all rocking or movement of the pin. As a result our bucket front eyes do not wear and the operation of welding and grinding with a grinding rig is unnecessary throughout the life of the bucket.

It is regrettable that the Empire dollar stringency prevents us from giving a trial to some of the interesting plants advertised in **WORLD MINING** as I should like to experiment with the "Spiral Concentrator" in particular. **WORLD MINING** is widely read and gives us occasional flashes on other peoples' difficulties in parts of the world not covered by other mining periodicals.

H. Murray Duncan,
Acting Mine Superintendent
Southern Kinto Consolidated
Limited
Kinta Section
Batu Gajah, Perak

Report from Algeria

Dear Sir:

We receive **WORLD MINING** with much interest as it keeps us informed regularly on improvements and modifications observed in the mining and milling installations over the entire world.

Recently your magazine attracted our attention to the possibilities of heavy media

separation as we happened to have some assays on lead samples from one of our properties in Algeria. These assays have given satisfactory results and we have the intention of revising our flowsheet to permit pre-concentration by heavy media separation.

R. Chililot, general manager
Compagnie des Mines
d'Ouasta & de Mesloul
Province de Constantine
Algeria

Literary Concentrates

Dear Sir:

For quite some time I have been receiving **WORLD MINING** and want to thank you very much for it. There is certainly a great deal of mining news from all over the world concentrated into brief form.

A. L. Ferris
Mina el Tabano
Tuquerres (N)
Colombia

Discovered in Mexico

Dear Sir:

I am desirous of securing several copies of the issue of **WORLD MINING** for May, 1949.

I am at the present time interested in the development of tin in several parts of the world, particularly in Mexico, where I have come across several issues of **WORLD MINING** and this publication is of great interest to me.

S. Geekie Cobb, B. Sc., E.M.
16 Glencourt Park Road
Toronto, Canada

Pakistan Comes In

Dear Sir:

For quite some time now I have had the pleasure of receiving your excellent review, **WORLD MINING**, covering mining interests all over the world.

Abdul K. Mehto, geologist
Pakistan Industries Limited
Quetta, Pakistan

More on Tin Mining

Dear Sir:

Through your kindness I have been receiving your valuable magazine for several months, for which I am grateful. It is a most useful paper of world mining and I enjoy it, although our Chinese tin mines in Malaya are practically all mined by the open cast alluvial system. Prewar I had one lode mine on the Main Range but, owing to internal disruption, mining there at present is impossible. I also possess an iron area on the East Coast of the Peninsula not yet opened, so your magazine interests me very much.

Choo Kia Peng
146 Ampang Road
Kuala Lumpur
Malaya

From Rhodesia

Dear Sir:

I find the **MINING WORLD** most interesting. The fact that it provides such a wide coverage must necessarily restrict the amount of space available, but it provides an excellent cross section of information on mining matters which must be of great interest to all mining engineers.

R. B. Greaves, Manager
Phoenix Prince Gold Mining
Co., Ltd.
Bindura, Southern Rhodesia

COMPLETE MINING, MILLING, CONCENTRATING PLANTS FOR SALE—ALL OR ANY PART

We have a very complete selection of nearly every item needed for mining, milling, construction. Here is a partial list of equipment available.

PIPE AND RAIL

75#, 60#, 52#, 45#, 30# and 20#. Big selection rail. 1", 2", 3", 4", 6", 8" pipe. Large quantities.

STRUCTURAL STEEL

Several complete all steel large buildings, suitable for milling plant. Several hundred tons channels, I beams, columns, angle iron and trusses. Steel ore bins, steel agitator tanks, steel thickener tanks, steel mine lockers.

BALL MILLS

2—275 Marcy's with motors.
3—286 Marcy's with motors.
1—276 Marcy with motor.
2—5' x 8' Denver tube mills.
2—5' x 13' Denver pebble mills.
1—4' x 4 C.I.W. ball mill.
1—4 1/2' x 3 Ball Foundry ball mill.
1—7' x 36" Hardinge conical ball mill.

MINE HOISTS

1—Washington Iron Works single drum hoist, 175 HP.
1—Sullivan single drum hoist, 7 1/2 HP.
1—Hendrie Bolthoff single drum hoist, 100 HP.
4—Sullivan double drum tugger hoists, 10 HP.
2—Sullivan double drum tugger hoists, 7 1/2 HP.

MOTORS

Approximately 500 motors, from 1/2 HP to 300 HP available, nearly all sizes and descriptions.

MINE CARS

10—Granby mine cars, 4 ton, 80 cu. ft., side dump, 24" gauge.
50—Sanford Day bottom dump mine cars, 89 cu. ft., 36" gauge.
38—Truax 1 1/4 ton mine cars, 18" gauge.
22—15 cu. ft., 18" gauge.
30—8 ton, 24" gauge, 157 cu. ft.
16—3 ton, 24" gauge, 47 cu. ft.
Man cars, powder cars.

COMPRESSORS

1—Ingersoll-Rand 650 cu. ft., 100 HP air compressor.
1—Ingersoll-Rand 1,000 cu. ft., 150 HP air compressor.
1—Imperial type 10 I.R. compressor, 75 HP.
1—single cylinder compressor 9" x 12", 40 HP.
1—Chicago Pneumatic 20" & 12" x 16", 2,300 cu. ft. compressor.
1—Ingersoll-Rand 676 cu. ft., 2 stage air compressor.
1—Ingersoll-Rand 488 cu. ft., 2 stage air compressor.
1—Gardner-Denver 100 cu. ft. gas driven, on skids.

TRANSFORMERS

3 KVA to 833 KVA transformers, large range sizes and voltages. Also metering and instrument transformers.

MUCKING MACHINES

4—Elmo No. 12, 18" gauge, one 24", reconditioned.
2—Elmo No. 21, 24" or 36" gauge, reconditioned.

DIESEL

1—70 KVA diesel generator set, Caterpillar D13000 engine.

Complete 50-ton cyanide mill priced right. Blowers — Belt Trippers — Classifiers — Electric Cable — Feeders — Filters — Magnets — Samplers — Scrapers — Screens — Mine Rescue Equipment — Blacksmith Machinery — Timber Framers — Ore Bins — Large Motor Drying Oven — Machine Shop Equipment — Office Supplies.

We are now liquidating five large plants. Write or wire for our plant inventories.

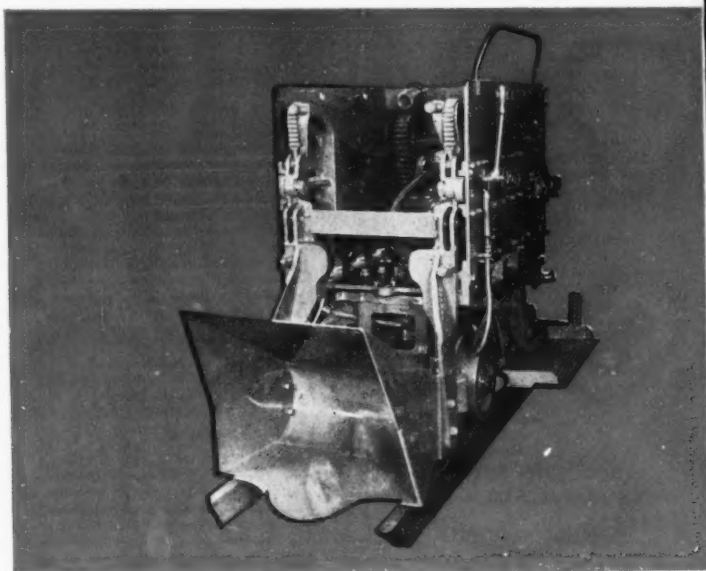
CATE EQUIPMENT CO., INC.

49 East Ninth South Phone 9-2021
Salt Lake City, Utah

**"One of the best pieces
of equipment on the job!"**

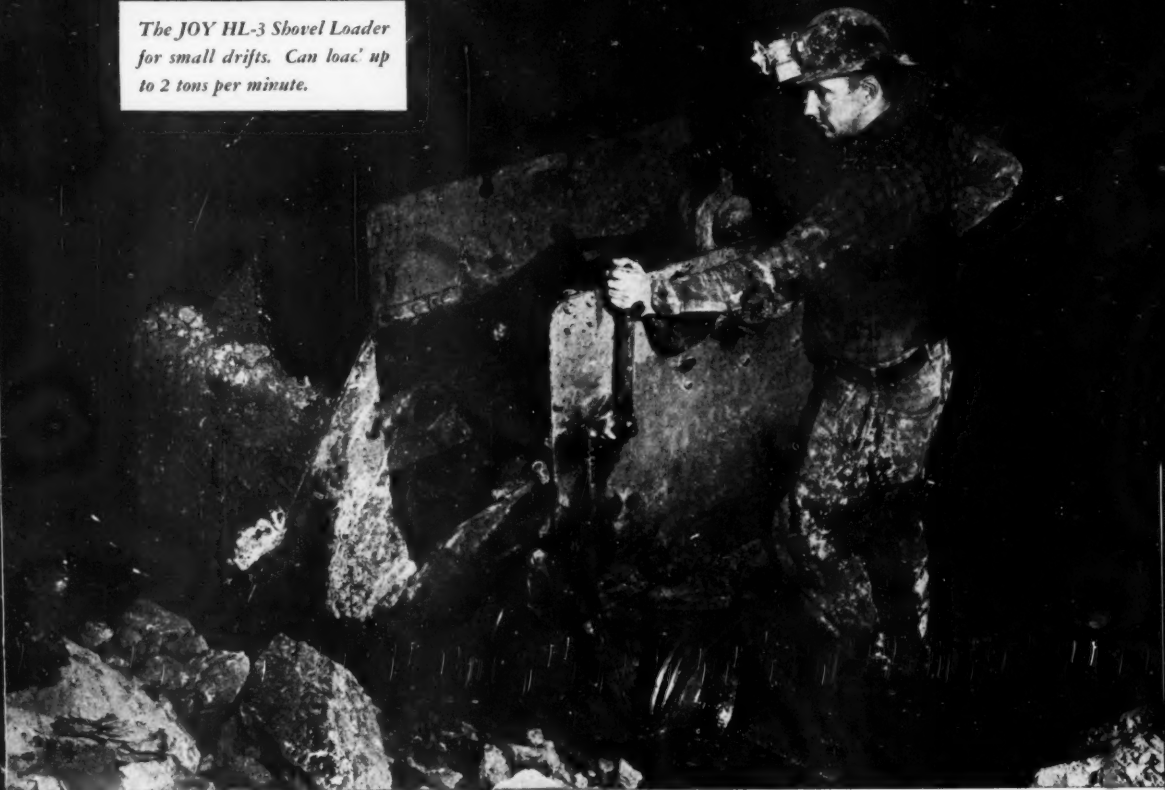
That's what users say about

JOY SHOVEL LOADERS



*The JOY HL-20 Shovel Loader for large drifts. Can load up
to 3 tons per minute using cars from 50 to 90 cu. feet capacity.*

*The JOY HL-3 Shovel Loader
for small drifts. Can load up
to 2 tons per minute.*



Note these Superior Features

**They mean Lower Maintenance—Faster Loading at
Less Cost—Greater Flexibility**

- automatic CENTERING DEVICE, an exclusive JOY feature. Quickly and easily adjusted to have centering take place at any point in the loading cycle. Makes loading under inclined walls easier, and gives a longer, straight throw back into the car.
- SUPERIOR CONSTRUCTION . . . truck frame, gear case, and bumper are all combined in one heavy alloy casting for perfect alignment of all parts.

- exclusive "PISTONAIR" MOTORS . . . give greater power for loading and tramming, and provide better air economy.
- a LUBRICATION SYSTEM that is simple, yet provides ample lubrication for all moving parts.
- adjustable ROCKER-ARM LEVER-AGE, another exclusive JOY feature. By changing position of lifting chains, the loader can load either long or short cars by changing discharge speed of bucket.

*Consult a
Joy Engineer*



WRITE FOR BULLETIN

JOY MANUFACTURING COMPANY

GENERAL OFFICES: HENRY W. OLIVER BUILDING • PITTSBURGH 22, PA.

IN CANADA: JOY MANUFACTURING COMPANY (CANADA) LIMITED, GALT, ONTARIO



townsite sewage treatment a problem?

Get **HIGH EFFICIENCIES**
AT LOW COST *with the Dorr Clarigester*

EXPRESSLY DESIGNED to serve small populations, the Dorr Clarigester is the ideal answer to dependable, low cost sewage treatment for the plant community. A "two-in-one" unit, it combines a Dorr Clarifier mechanism in the top compartment with a Dorr Digester mechanism in the lower ... both built into an attractive, compact structure. It retains all the advantages of the Imhoff tank, but eliminates unsightly floating scum, lack of control and costly construction.

Completely mechanical operation is

the key to Clarigester efficiency. Clarification and scum removal take place in the upper compartment ... homogeneous digestion, and sludge collection in the flat-bottomed lower compartment. A special one-way trap or seal prevents the passage of gas or sludge liquor upward from the lower to the upper compartment. Heating coils may be installed to promote optimum digestion temperatures with hot water usually supplied by a small coal, gas or oil fired boiler.

Available in sizes from 10 to 40 feet

dia., the Dorr Clarigester is ideally adapted to the requirements of mining town populations. No other unit brings to such small communities the uniform and controllable results that come from mechanical sedimentation and digestion.

Write for Bulletin #6691-C for further information ... or better still, let a Dorr engineer explain the Clarigester to you in terms of your own problem.

DORR
RESEARCH — ENGINEERING — EQUIPMENT

DORR

THE DORR COMPANY, ENGINEERS
570 LEXINGTON AVE., NEW YORK 22, N. Y.
ATLANTA • TORONTO • CHICAGO
DENVER • LOS ANGELES
RESEARCH AND TESTING LABORATORIES
WESTPORT, CONN.
SUGAR PROCESSING
PETREE & DORR DIVISION, NEW YORK 22, N. Y.
ASSOCIATES AND REPRESENTATIVES
Dorr Technical Services and Equipment Are Also Available Through Associated Companies and Representatives in the Principal Cities of the World.
Names and Addresses on Request.

WORLD MINING

The International Department of MINING WORLD

SAN FRANCISCO, CALIFORNIA

SEPTEMBER, 1949

INTERNATIONAL PANORAMA

WASHINGTON, D. C.—Removal of export quotas for U. S. producers of tin plate, effective October 1, 1949, was announced recently by the Office of International Trade, Department of Commerce. Exporters still will need validated export licenses.

CLEVELAND, OHIO—Late July announcement of Lake iron ore on hand showed stockpiles totalled nearly 27,700,000 tons at furnaces and unloading docks, over four months' supply at June consumption of 6,238,535 tons. Consumption by furnaces in April and May was 7,321,856 and 7,276,619, respectively.

JOHANNESBURG—A year ago South Africa's gold reserves stood at about \$920,000,000. By mid-July this had been reduced to \$240,000,000 and included a \$60,000,000 gold loan to Britain. A further reduction in gold and exchange resources is expected.

FRANCE—Consumption of copper promises to increase in this Republic with the generally better economy of the country, a direct outgrowth of ECA aid. The greatest potential market lies in modernizing French homes and farmhouses.

ENGLAND—Offsetting decline of domestic iron ore production as a result of labor shortage has been increasing tonnages of imports which have just about balanced the domestic falling off in supply.

NEW ZEALAND—Depending upon the outcome of the final test—the actual smelting of a sample of beneficiated iron sand—lies the possibility of this commonwealth's long-hoped-for integrated steel industry, it was recently announced by Arnold Nordmeyer, Minister of Industries and Commerce.

MEXICO—The Ministry of Finance, Lic. Ramon Beteta, secretary, has ordered that semi-refined and refined gold can only be exported with special permit of the Bank of Mexico, Lic. Carlos Novoa, director general.

FRANCE—As a gauge of economic recovery in France, the following figures speak well: Production of iron ore in April was nearly 2,570,000 tons, of which 540,000 tons was exported.

TOKYO—Recent dispatches from Japan indicate that negotiations are under way to import zinc concentrates from Burma for treatment and refining.

INDIA—A fifteen-year pact between France and India was signed recently whereby the principals entered into an agreement for the processing of monazite sands, of which one of the world's largest deposits is found in Travancore State.

CANADA—What is the greatest lithium mine thus far discovered in the world will begin milling on a substantial scale next spring at the Catlake mine, Manitoba. A 300-ton sink-float plant is under construction. Initial investment will total \$3,000,000.

IRELAND—Silvermines Lead and Zinc, Ltd., issued 2,000,000 shares of 1s. to finance the opening of the Shallee lead property and the Silvermines zinc holdings in County Tipperary.

CEYLON—An indication of the trend of events is seen in the recent edict that no more permits will be issued for the export of nonferrous metals such as copper and lead from the island.

MEXICO—Discovery of important sulphur deposits on the Isthmus of Tehuantepec, in Vera Cruz and Oaxaca, indicates that the find is worth exploiting by the Frasch process. The first plant must be at least of 200,000-ton capacity for profitable operation.

AUSTRALIA—The coal strike is the most important news of the month because for lack of this commodity the entire mining industry of the country is grinding to a halt. Iron and steel production are at a standstill, copper, lead and zinc virtually paralyzed.

GERMANY—With an estimated 27,800,000 tons of proved ore, the Maubach lead property in the Duren district of Western Germany is becoming one of the greatest lead properties in Europe.

BURMA—The stipulation that Burmese capital control 60 percent of any mineral enterprise operating in the country has been rescinded. Also, the Union of Mineral Resources Enabling Bill has been passed. This bill grants exploration rights to foreign companies.

NEW YORK—Since July 8 until these items go to press the price of lead has advanced from a low of 12 cents to 15½ cents per pound; zinc has risen 1 cent to 10 cents per pound; copper now stands at 17½ cents from a low of 15¼.

MEXICO—Agustin Guzman V., secretary general of the Miners' Union and head of the newly organized General Union of Workers and Peasants, announced that the Republic would be unwise to resume the gold standard at present because it would drain its short stock of dollars and demand too much other money to sustain it.

India's Machinery Imports Increase

From April, 1948, to September, 1948, imports of mining machinery to India amounted to nearly 5,000,000 Rs., which is twice the amount spent during the same period a year before. The figure is still well below the 1945-46 record of 11,000,000 Rs., but is increasing rapidly.

The United Kingdom exported 57 percent of the goods and the United States sent 41 percent. Other countries contributed the balance. India paid Britain 2,802,825 Rs. for the 1948 exports during the six-month period and paid the United States 2,017,256 Rs.

The Indians appear to be customers of notable importance to the British mining machinery industry.

Congo Copper Company Expands Facilities

Union Miniere du Haut Katanga, which is enlarging many of its properties, has completed the construction of a new roasting furnace, is erecting a second converter for copper and is installing modern machinery for the recovery of copper, cadmium and zinc flue dust at Lubumbashi, Belgian Congo.

At Jadotville-Shituru, the Kolwezi and Kipushi concentrators and the electrolysis plant for copper and cobalt are being enlarged.

At Centrale Bia, one of two new power stations should be in operation before the end of the year. Continued work is reported on the hydro-electric installations, on which construction started three years ago.

Union Miniere and other firms organized the Societe Metallurgique de Katanga (Metalkat) in 1948, and under this organization's direction an electrolytic plant at Kolwezi is to be built to treat Union Miniere's zinc concentrates.

Completion of these many projects will make the company one of the largest producers in the area.

200 Canadian Companies Explore Uranium Field

More than 200 Canadian mining companies, in addition to several United States concerns, are starting to carry out their plans for the exploration and development of the 250-mile pitchblende mining field stretching along the north shore of

WORLD MINING

Issued as an International
Department of
MINING WORLD

by American Trade Journals,
121 Second St., San Francisco,
California.

A Miller Freeman Publication

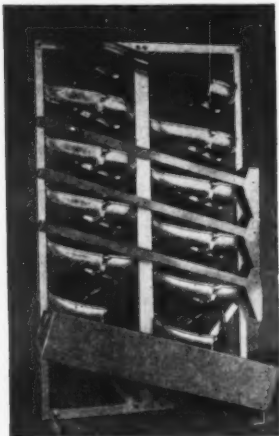
President . . . MILLER FREEMAN
Publisher . . . W. B. FREEMAN
General Manager . . . M. F. HOLSINGER
Editor . . . JOHN B. DORSH, E. M.
Production Manager . . . E. B. HERINGTON
Eastern Manager . . . K. WEGKAMP

Regular correspondents in the following
cities and mining centers:

Santiago, Antwerp, Stockholm, Cyprus,
Tientsin, San Jose (Costa Rica), Baguio
(Philippines), London, Tokyo, Frankfurt,
Medelin (Colombia), Strangways (Victoria,
Australia), Vancouver, Paris, Bangkok,
Mexico City, Helsinki, Tananarive (Madagascar),
Rudruith (Cornwall), Oslo,
Benares (India), Darsley (Transvaal,
South Africa), Budapest, Singapore, Buenos
Aires, Lisbon, Madrid, Ankara, Lima,
Rome, Sao Paulo.

WORLD MINING is published the 26th
of each month as a regular department of
MINING WORLD and is also circulated
as a separate section on a carefully
controlled free basis to a selected list of
management and supervisory personnel
associated with active mining enterprises
throughout the world.

HUMPHREYS SPIRAL CONCENTRATOR



LOW COST OF INSTALLATION
NO MOVING PARTS
LOW OPERATING COST

Engineering Division
The Humphreys Investment Co.
909 First National Bank Building
DENVER 2, COLORADO

Lake Superior in the Algoma district
of Ontario.

Surface drilling has already been
started by the Camray Mining Syn-
dicate, owner of the sensational pitch-
blende claims discovered by Robert
Campbell last year. The syndicate
has several properties in the Theano
Point region and men in camps ready
for extensive operations.

The Camray find is said to be the
fourth major uranium find in Canada.
Workers are being housed in pre-
fabricated dwellings and equipment
transported to bases of operation by
bulldozers.

While established companies start
their exploratory operations, more
prospectors are reported to be enter-
ing the district to seek additional ore
on which to stake claims.

German Lead Mine Shows Great Potentialities

The Maubach lead mine in the
Duren district of Western Germany
is becoming one of the biggest lead
development properties in Europe.
Stolberger Zink A. G. for Bergbau
und Huttenbetrieb, with offices at
Aachen, owns the mine as well as
zinc and lead mines and smelters
near Stolberg.

Drilling has reached a total of
14,000', with boreholes averaging 50
to 200', and 27,800,000 tons of agglom-
erate ore mineralized with galena is
estimated to exist in the ground. The
ore is lowgrade, assaying around 4
percent lead and 1 percent zinc.
About 400 tons is being mined daily,
a figure which is to be increased to
3,000 tons per day as soon as the de-
velopment of present facilities can
be carried out. Milling operations are
to be improved to the point of 97 per-
cent extraction.

The present smelters are suffi-
ciently large to handle the 3,000 tons
per day that will be mined, and a
boost to production is expected if
Marshall Plan funds can be obtained.
American mining men have exam-
ined the property and have found its
potentialities great enough to request
that aid definitely be given.

Yugoslavia to Increase Its Mining Activity

As a result of exploration carried
out largely by the Exploration Cor-
poration of the Yugoslav Ministry of
Mines in Belgrade, increased mining
activity is planned. Prospecting has
uncovered rich iron ore and non-
ferrous orebodies. In Montenegro
exploration turned up lead and baux-
ite, and, near the Albanian border
in Macedonia, lead and chromium
deposits were found. Further pros-
pecting of available resources is to be
assisted by the erection of a factory

this year to produce deep-boring
equipment. The work will be situ-
ated in Zimun, Banat, on the Danube,
near Belgrade, and will be the first
of its kind here.

An agreement exists between
France and Yugoslavia providing for
an exchange of goods in 1949 amount-
ing to about \$24,000,000. During the
next five years, the agreement pro-
vides for orders valued at about
\$80,000,000. During 1949 France will
ship steel, electrical equipment and
a complete blast furnace to be built
in Yugoslavia. Yugoslavia will in
turn send France non-ferrous ores
and metals, principally copper from
the Bor mines. This mine and the
Compagnie Dalmatienne des Mines
at one time belonged to France, but
they were "liberated" a while back
by Yugoslavia without compensa-
tion, a fact which is to be ironed out
by the government in its October
meetings.

Tsumeb Will Sink Shaft Below 20th Level

Tsumeb Corporation, Southwest
Africa, has made considerable prog-
ress in the past year in opening up
its copper-lead mines. The workings
were unwatered down to the 20th
level and now a new shaft will be
sunk below that level, where recent
diamond drilling shows a large ore-
body. The new shaft, which will cost
over \$2,000,000, will handle about
2,000 tons of ore per day and will take
two or three years to complete.

A new 900-ton flotation mill put
into operation some months ago has
been expanded to a capacity of 1,200
tons of ore per day.

Some discussion is going on as to
the advisability of building a smelter
at the mine (ore is being shipped out
of the country for smelting at pres-
ent), but as yet not enough is known
of the characteristics of the ore being
blocked out to warrant the additional
expenditure.

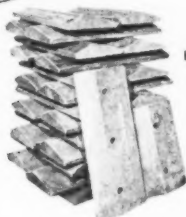
Dredging Operations Increase in Alaska

Yukon Gold Placers, Ltd., com-
pleted construction of its new 4 cu. ft.
gold dredge recently. This dredge was
erected on Thistle Creek, a tributary
of the Yukon River, about 100 miles
upstream from Dawson City, Yukon
Territory. The dredge was designed
by Walter W. Johnson Company of
San Francisco and is of all steel con-
struction, pontoon hull and diesel
electric drive. H. M. Holbrook is
superintendent.

Yukon Gold Placers, Ltd., is under
the management of Ernest N. Patty,
who also directs dredging operations
for Clear Creek Placers, Ltd., and
two dredging operations in Alaska—
Gold Placers, Inc., and Alluvial Golds,
Inc.

*Trends in mining constantly change
but this fact remains...*

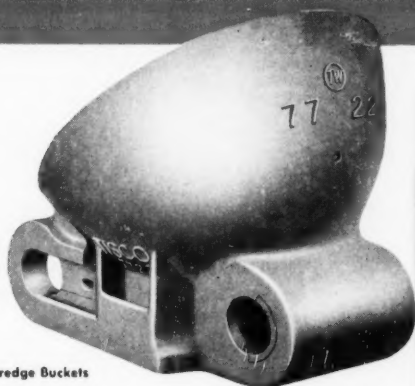
TISCO MANGANESE STEEL *outwears all steels under severe impact and abrasion!*



Ball Mill Liners



Dipper Teeth



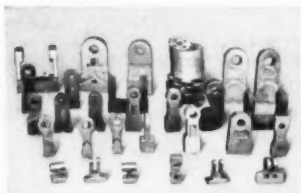
Dredge Buckets

SINCE 1892, when Taylor-Wharton poured the first heat of Hadfields Manganese Steel in America, this tough, work-hardening steel has proved its superiority for wear parts in digging, dredging, crushing, grinding, pulverizing, conveying and other equipment subjected to heavy abrasive wear.

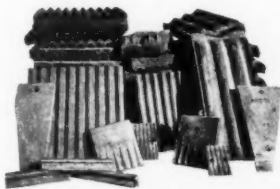
Taylor-Wharton has had longest experience in this country in melting, pouring, heat-treating, grinding and inspecting manganese steel—and in its practical application under every possible condition. TISCO Manganese Steel is produced in the

most modern electric furnaces, under constant supervision of experienced metallurgists. All TISCO castings are carefully designed for best foundry practice and proper heat treatment, made to accurate analysis, held to accurate dimensions. This combination assures longer wear, fewer breakdowns, lower cost in your severe-service operations.

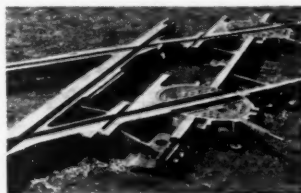
To get these advantages, be sure to specify the name TISCO when ordering new equipment or replacement parts from your supplier. Engineering cooperation gladly given.



Pulverizer and Hammermill Parts



Jaw Crusher Parts



Railroad Trackwork

Taylor-Wharton Iron and Steel Co.
High Bridge, N. J. Easton, Pa., U. S. A.

Cable Address: TISCOSTEEL, Washington, N. J.

Offices in: New York
Charleston, W. Va.

Pittsburgh
Dayton

Chicago

San Francisco
Baltimore

Los Angeles
Seattle

Represented in London, England; The Hague, Holland; Malaya and Netherlands, East Indies

TISCO *first in*
MANGANESE STEEL

FOUNDED



1742



Left: This rear-dump Euclid FFD is one of the more unusual units being tested in that it is powered by two 190-hp. Series 671, General Motors, 2-cycle diesel engines. With a 34-ton rated capacity in its 20-cu. yd. struck measure hydraulically actuated body, it has spring mounted tandem axles each of which is driven through a torque converter by one of the engines. Euclid Road Machinery, the manufacturer, has recently announced that the FFD is now a production unit and that deliveries are being made to users. The shovel is a Bucyrus-Erie 170B with 6½-yard dipper. Right: Because of its high capacity this 25-yd. 108W, semi-trailer, bottom dump Euclid appears promising under certain conditions. Hanna uses its regular 275-hp. Cummins powered TD Euclid with box removed for a tractor with this trailer rather than a similarly powered tractor designed for the unit. The famed "Haul more than you can carry" theory is not borne by fuel consumption records on this model, but the company is sufficiently satisfied with performance to have assigned 12 of them to ore haulage on its Mississippi Group of mines.

TRUCK HAULAGE ADVANCES

Pioneering techniques in rubber-tired equipment, M. A. Hanna Company establishes proving ground for all types of ore moving conveyances

Off highway haulage of metallic ores in rubber-tired equipment is now accepted as practical and economically sound, but the search for bigger, faster, better, and cheaper methods goes on. As a matter of fact, at the M. A. Hanna Company at Hibbing, Minnesota, it is being advanced with no less than seven basically different, unproven or partially unproven models being tested under operating conditions in the pits. Some

appear to be promising units as they stand; others have substantial weaknesses; all will make a contribution to the advancement of hauling techniques.

Working in co-operation with various manufacturers who have a major stake in mining, Hanna is testing such items as large capacity dump trucks with Diesel engines of far greater horsepower than any in regular operation, a functional prime mover with

aircraft-type high horsepower butane engine, large capacity bottom dump semi-trailer jobs, units with two driving engines, torque converters, thermostatically controlled fan blades, and so on.

The purpose of this article is not to predict the future of any particular development, but, rather, to point up some of the promising work that is being carried forward which will undoubtedly influence this phase of mining. MINING WORLD acknowledges its pleasure in working with the M. A. Hanna staff, especially Supervisor of Mobile Equipment, H. E. Farnum, in the preparation of this material.

A Good Proving Ground

For the purpose of testing equipment, the operations of M. A. Hanna are perhaps as good an all-around single location as could be found in the metal mining field. Hanna is a good truck operator. Maintenance is excellent, with repair depots at all mines; skilled mechanics, frequent repainting of chassis, and one fully equipped Diesel engine overhaul shop for the group of mines in the area. Equipment is, however, not pampered. Full load capacity is carried at maximum safe speeds, and full performance over long periods is required of all equipment.

Length of hauls vary, with about two miles considered a practical maximum. Grades are a question. Most of them would be considered a good average, but more than a few

Radically different from any of the other experimental units is the Tournarocker, manufactured by Le Tourneau. This highly functional unit has a capacity of about 50-ton and is powered by a 1,710 cu. in. Allison, aircraft type engine that burns butane and has been derated to perhaps 400 or 450-hp. It is easy to load, fast moving, fast dumping and extremely maneuverable. Higher initial cost and the relative cost of butane and diesel fuel will figure strongly in the use of this admittedly practical unit. In the picture, the Tournarocker is being loaded with an 11-yd. dragline bucket.



INTERNATIONAL

are rather steep (up to 10 percent) for economical truck operation. Roadbeds are good, surfaces are excellent; and several graders are in constant operation.

Accurate cost data are kept. Maintenance required, fuel consumption, tire wear, etc., is also recorded, making close checking of performance possible.

In the past, Hanna haulage has been almost standardized on the Euclid TD, rear dump, 20-ton unit, powered by a 275 Cummins NHS Diesel engine. This has proved a rugged, dependable, low-cost performer; and it is against its record that all cost per ton mile of other units is measured.

Big Orthodox Trucks

First of the really big truck-type units to arrive at Hanna's operations was the Euclid 6TTD, a 40-ton (26 cu. yd. struck measure), rear dump job, powered with Cummins newly announced NVHS, 550-hp. V-12 Diesel engine, affectionately known as "Grandpa." The purpose was to check engine performance as well as chassis design.

Grandpa is really big, 84,160 lbs. empty. It has a nine speed Fuller transmission and tandem axles mounted on walking beams. It wears eight rear tires, size 16 by 32, 25-ply rating. A power divided behind the transmission gears engine output to two drive lines, one to each axle.

In two years of use on a short (1,000') haul, the 6TTD's performance has been fair. It is fast, speed compares favorably with the 22-ton TD jobs; fuel consumption per ton mile is low. Down time for maintenance has been somewhat high even for an experimental unit, and maneuverability is limited, which makes it impractical for use in restricted areas.

Mack Truck's model LRSW is a similar mammoth, also powered by the NVHS Cummins, 550-hp. V-12 Diesel engine. Designed by the manufacturer to handle a Heil, rear dump body of 20 short tons capacity, its body has been built up to 20 cu. yd. struck measure, and it handily moves a full 30 long-ton load of ore with the power developed. Rear tires are 16 by 24.

The LRSW has a TRDX transmission, 1,800 series drive line and tandem axles. The rear axles do not, however, have standard differentials. Instead, power dividers have been placed between the wheels and in the drive line ahead of each axle. It is so arranged that 75 percent of the power goes to the wheel that is holding. This makes it possible to haul from spots where only one of the four rear wheels is getting traction, an excellent feature under mine haulage conditions.

An identical unit to this Mack is in

use at Hanna's Perry mine, except that it is powered by a Cummins 300-hp. NHRS engine.

The Euclid 92W and 108W bottom dump semi-trailer has pretty well proved itself under certain conditions at the Mississippi Group of mines. Twelve of these are currently used on the ore and stripping haul at this operation.

The body has a 25 cu. yd. struck capacity and will nicely handle more than forty tons over most hauls. It weighs 63,000 lbs. empty and has two rear wheels that take 27 by 33 tires of 30-ply rating.

The bottom dumping doors are tripped by a pneumatic cylinder and open by gravity. They are closed by a "wheel wind" cable control. This is a device that picks up power, by means of a small wheel, from the rear tire of the trailer. A cable winding up on a small drum draws the doors closed and they automatically latch. The wind up is satisfactory, although about 200' of travel is necessary to completely close the doors. There is some weakness in the latching mechanism or the wind up can be disengaged before the doors are tightly locked because occasionally the first shovel of material, dropped very heavily onto the bottom, can knock it open.

There is a definite trend toward the semi-trailer bottom dump units where they are applicable because it is possible to carry more weight with this arrangement. However, from the cost per ton mile and the fuel consumption standpoint, the theory of being able to pull more than you can carry does not carry through, though operations have been speeded somewhat.

Unorthodox Trucks

Both of the experimental jobs in this classification are twin engine

powered, using two smaller diesel engines operating independently and applying their power through torque converters.

One of these is an 18 cu. yd. struck measure, bottom dump, semi-trailer type very much like the 108W described above, except that one of the engines is mounted on the rear of the trailer and drives the trailer wheels.

This unit is powered by two Series 671 General Motors, 190-hp. 2-cycle diesels. One is mounted on the tractor in the conventional manner and drives the rear wheels of the tractor through an 18" Allison torque converter and Allison torquomatic transmission with three speeds forward and one reverse. The engine mounted on the trailer has an identical converter and transmission arrangement and a very short drive shaft to the trailer differential.

Both engines and transmissions are controlled by the operator from the cab of the tractor. Electrical contacts are used to actuate the control mechanism for the rear unit.

Tire sizes are odd. Tractor front, 12.00 by 24; rear, 24.00 by 25; trailer, 24.00 by 33.

This Euc was broken in on a dam job in Wisconsin and moved last fall to the South Agnew mine, where it has been hauling overburden. While its appearance is strange, because it is different, it has performed in a way to command attention. Speed is good, flotation is good, it is easy to load, on a heavy pull it is better than average under very difficult conditions, such as in deep water, etc.

The Euclid FFD, the other twin engine job, looks more like a conventional truck. It has a 20 cu. yd. struck measure, rear dump body that is rated to handle 34 tons, spring-mounted tandem axles, hydraulic booster steering and steering brakes

A cross between the twin engine FFD and the 108W bottom dump semi-trailer is this unit which is powered by two Series 671, General Motors, 190-hp. diesel engines. One engine drives the rear wheels of the tractor through an Allison torque converter while the other powers the wheels of the trailer through an identical drive and transmission arrangement. One driver operates both engines and transmissions, the rear unit being controlled through electric contacts.





Top: Mack built counterpart of the "Euclid Grandpa" is this LRSW model powered by the new Cummins NVH5, 550-hp. V-12 engine. Built with a rated capacity of 20 tons, the body has since been built up to carry 20-cu. yds. (30 long tons of Hanna ore), and this load is handled nicely. A special single drive line delivers power to the tandem axles which do not have a standard differential. Instead, power dividers are used between the wheels and the axles. This permits 75 percent of the power to be delivered to the wheel having the greatest traction. The body was built by Heil.

Bottom: Affectionately known as "Grandpa" is this huge 40-ton Euclid 6TDD powered by a Cummins NVH5, 550-hp. V-12 engine. A divider behind the nine speed transmission delivers power through two drive shafts, one to each of the tandem axles. Advantages: High load capacity, speed comparable to standard 20-ton unit, low per ton fuel consumption. Poor maneuverability limits use to relatively large, well developed areas.

on the drive wheels which reduce turning radius and improve maneuverability. However, under the hood are two Series 671, General Motors, 190-hp. 2-cycle diesel engines. Each drives one of the two rear axles through an 18" Allison torque converter and Allison torquomatic transmission. The engines have 70 mm. fuel injectors.

The FFD has no clutch pedal or manual shifting of gears, and the operator can change gears under full power at any travel speed. Top speed with full load is 25.4 m.p.h.

Performance by this unit has been excellent, especially under difficult conditions. It has been used on a rather short (¾ mile) haul at the

Douglas Mine where a short part of the grade is 12 percent. The flow of power to each axle independently of the other, and an even application of this power through the torque converters permits this unit to pull with constantly increasing speed out of rough, heavy going that would bog down a single axle machine.

Fuel consumption by the FFD and by the twin engine, bottom dump Euclid is high, substantially greater than in the standard machines. However, offsetting factors may include improved overall performance, decreased maintenance, increased truck life and reduced tire failure due to slippage.

Euclid Road Machinery Company

has recently announced that the FFD is now a production unit and that deliveries are being made to both mining and contracting companies.

Non-Trucks

The most unusual of the items being tested is the Le Tourneau Model A Tournarocker. Briefly, it might be described as a combination of the rear dumping advantage of a truck, the high capacity and maneuverability of the carry-all scraper and a brand new design of body that makes it one of the most functional pieces of equipment yet tried on the range.

The Tournarocker has a 32 cu. yd. body of modified "bath tub" shape and 50 tons rated capacity mounted on two wheels. It is designed to be extremely easy to load even when a large dragline bucket is used. It has a cable dumping mechanism actuated by an A.C. electric motor that drives both the dumping hoist and the steering. It discharges its load quickly and cleanly.

The two-wheeled prime mover, similar to those used on modern scraper equipment, that pulls it is powered by a 1,710 cu. in. aircraft type Allison engine that burns butane. This high speed engine, that originally developed some 1,600 hp., has had the supercharger removed and been further derated by limiting the maximum r.p.m. It probably generates between 400 and 450 hp. as used in the Tournarocker. The transmission is a 5A1120 Fuller. Total weight empty is 53,000 lbs.

To term this an experimental unit is not strictly accurate. Smaller models are in successful operation, and the big job being tried on the range has surprisingly few questionable features. It is fast on level ground and compares favorably with the trucks on hills. It is extremely maneuverable, easy to operate, has good visibility, rides well, is easy to load and dump, hauls a huge load, and has a good load to weight ratio.

On the other side of the ledger is a relatively high initial cost, four to eight thousand dollars more than conventional units of near comparable capacity; and present fuel costs favor diesel oil slightly over butane.

However, higher octane rating for butane and lowered crankcase dilution may be offsetting factors. A minor drawback is that moving extremely heavy loads with only two drive tires is exceedingly hard on the dirt surfaced roads found in open pit mines.

Accessories Also Tested

Hanna has not stopped at testing new kinds of trucks developed by manufacturers. It has also conducted an endless search for equipment and

Continued on Page 60

BRITAIN'S BASE METAL POSITION

This analysis of Britain's current base metal position indicates that the future of the Empire's mining industry may be tied to U.S. prices

As a logical sequel to the non-ferrous metals symposium presented in the August issue of MINING WORLD the following article by our London correspondent is especially timely. In it the author states the position of the British Empire in so far as the nonferrous metals are concerned and shows that practically all reaction to the metal market for some time to come is tied directly to the United States government stockpiling program.—Ed.

The crisis in the United Kingdom's trading affairs caused by the sterling area's alarmingly adverse balance of trade with the dollar countries and, in spite of immense contributions of Marshall Aid, the alarming drop in Britain's gold reserve by the equivalent of \$260,000,000 in the space of three months has focussed public attention on the mining difficulties of the British Empire.

The principal cause of Britain's troubles is not increased expenditures but a sharp decline in the volume of base metals and commodities bought by America and the price paid for these goods in the American markets. In the first quarter of 1949 commodities from the British Empire sold in America brought \$120,000,000; in the second quarter the figure was only \$60,000,000. The decline in price of the base metals in the American markets (with London markets still closed, prices ruling on the American markets are now accepted as world prices) has come as a nasty shock to London mining men and to mining communities up and down the Empire. The fact of the matter, as will appear evident in my digest of each metal later on, is that American market prices and American stockpiling, particularly the latter, are the most important influences on base metal mining in the British Empire.

One way and another the outlook for the tin mining industry is not happy. The proposal to continue operating the heavily subsidized Texas smelter has come as a blow to the Malayan smelters. There is already a

By P. J. Sergeant

WORLD MINING Correspondent
London

surplus of tin which amounted to 20,000 tons last year. In addition, the output expanded more in the first two months of 1949 than for any of the other nonferrous metals. At present, producers have the support of the British Government when they attempt to maintain the present high price of the commodity. The Government holds large stocks of tin bought "at the top" and does not wish to see the values of its holdings depreciate.

Nevertheless, the price is expected to fall and have the effect of driving some high cost producers out of the picture. Tin miners in Malaya are watching carefully the progress of the American acquisition of tin for the stockpile and the negotiations of the American government's bilateral agreements with producers for both metal and ore. But a surplus production of 32,000 tons a year is already evident in the tin markets and there is a strong feeling that the time is ripe to abolish international allocation and return to a free market, ignoring

the American bilateral agreements. Otherwise, tin consumers say we shall return to the position of the 1930's when large world wide stocks of tin proved an embarrassment and drudge on the market. But there is little doubt that the British Government will resist as strongly as possible a reduction in price which would involve it in a loss on its stocks.

The outlook for Empire copper producers is better than that of their brethren in tin mining. Although a seven percent decline has taken place in copper consumption since the turn of the year, it tentatively appears production at 2,895,000 short tons will exceed consumption at 2,695,000 short tons this year. The Rhodesian copper mines like N'Changa and Mulifura are low cost producers and can contemplate the decline in price with more ease of mind than American producers. Production is being developed rapidly in Africa, particularly the Congo and Northern Rhodesia and, as far as the latter is concerned, waits only on the expansion of the railways and the coal supplies from the Wankee collieries before making itself felt.

The Ministry of Supply buys all the copper used in the United Kingdom

This is the only copper refinery in the sterling area that converts blister copper into electrolytic copper. Its production is being stepped up from its present capacity of 62,000 long tons of electrolytic copper yearly to 124,000 long tons yearly. The Rhodesia Copper Refineries, Ltd., is part of the Anglo-American group and refines copper produced at Rhokana and Nchanga. Picture shows a general view of the smelter and shows the tank house and refinery furnace building. C. R. Nichols is the consulting engineer responsible for the large extension to the plant that is expected to be finished in 1950 and to cost more than £800,000.



and is still paying for its supplies at the rates ruling last January. The London selling price is now based on the American market price.

Chilean and American costs are known to be well above those of the young Rhodesian mines, particularly the excellent N'Changa mine. If the price of copper falls appreciably, and London does not expect it to, the Rhodesian companies feel that the Chilean and American companies will be forced out of business before their own wide profit margins are unduly disturbed. In addition, a substantial fall in the price of copper will uncover a greatly increased demand from industry.

However, American buying still dictates the price of the metal and, as a good proportion of this is Governmental, it is unlikely the American authorities would underpin the prosperity of the Rhodesian producers at the expense of their domestic mines.

The outlook for lead is more complicated. According to the experts at the Empire metallurgical conference at Oxford, England, the world's lead reserves will be exhausted in ten years. This, I think, may be an exaggeration but, if consumption goes on at the present rate, there will probably be a shortage on a large scale.

At present, outside America, there is a substantial shortage of the metal. World prices and world consumption depends almost entirely on the level of business activity in the States. Production, particularly in the British Empire, has not kept pace with consumption for a variety of reasons. Operations in Australia have been



View of the West C headframe and hoist house of the Nchanga Consolidated Copper Mines, Ltd., potentially one of the largest copper producers in the world. At present output of the company is limited by refinery capacity and shortage of prime materials. The mine is owned by the Rhokana group and due to the exceptionally low costs of production is planning greatly increased production, notwithstanding the recent fall in copper prices.

frustrated by ridiculously high taxation, an inadequate labor force and a low domestic price. The Australian companies have kept their high grade ore reserves idle until some of these conditions are lightened or removed. Two big Australian mines, Mount Isa and North Broken Hill, have just declared dividends for the first time and other producers are planning to double their output in the belief that the Australian Government, recognizing the paramount urgency of obtaining dollars, will again increase the very low domestic price to make the

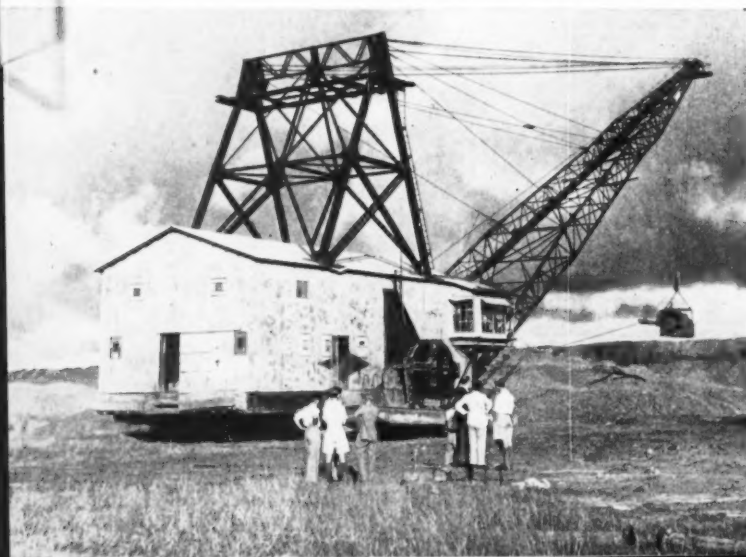
domestic sales of lead and zinc by the Broken Hill companies profitable.

The European smelter capacity has almost returned to pre-war level and the majority of zinc producers have overcome the transport difficulties which tied up a large proportion of the output of zinc concentrates last year. Smelter and refining capacity should prove adequate to deal with the supplies of base metals produced unless a specially increased demand, such as rearmament, appears.

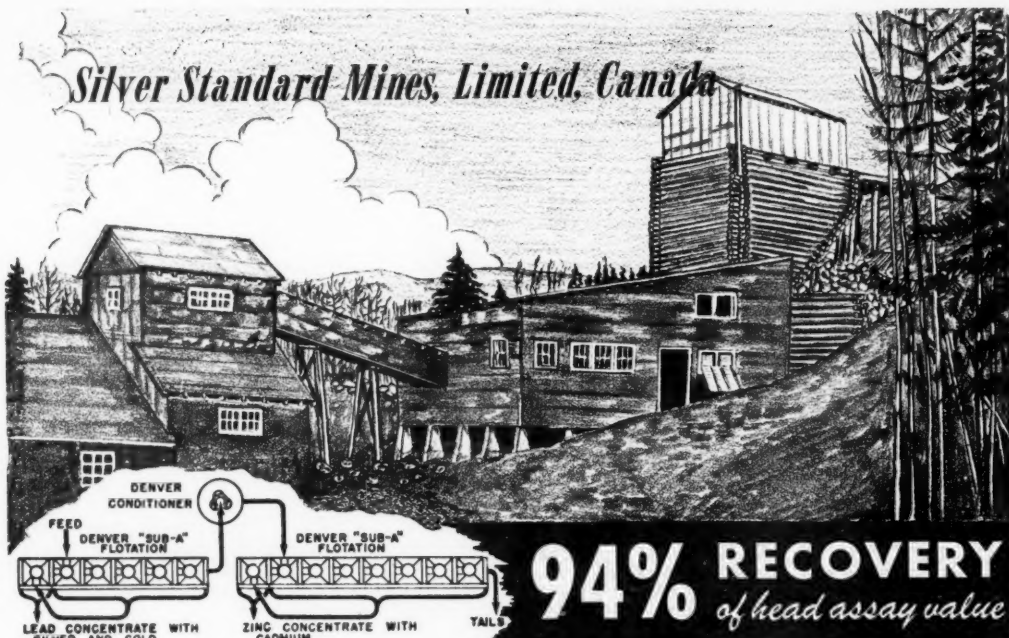
In virtually all the base metals, the mining companies plan their production on the basis of American demand and the activities of the American stockpilers. They believe that the recent decline in prices does not herald a slump but has been merely a healthy adjustment. Any change in business activity will be quickly reflected in the British Government's buying as all British consumers are discouraged from accumulating stocks of base metals and are forced to live on a hand to mouth basis.

The physical shortage in base metals will very soon be overcome and should activity decline further in America and in this country the gap between world consumption and output will increase still more. Applied to particular metals, market men expect this to bring a further decline in the price of all the metals with the possible exception of copper. But this will not have the same immediate effect on Empire producers as in America as the British Government is under contract to buy the total output of most mines for between three and six months ahead.

A dragline in action at the placer tin mines near Rayfield, Nigeria, on the Jos Plateau. Nigeria's chief mineral product is cassiterite, almost all of which is obtained from alluvial workings.



Silver Standard Mines, Limited, Canada



94% RECOVERY of head assay value

with DENVER "Sub-A" Flotation Machines

This high metallurgical recovery is accomplished in processing approximately 60 tons of ore per 24 hours. A 6-cell No. 15 (24 x 24) Denver "Sub-A" recovers lead and an 8-cell No. 15 (24 x 24) recovers zinc.

The Objective

Because silver is such a valuable constituent of the ore, the flotation objective is to produce a lead concentrate carrying as much silver as possible. Smelter payment for both gold and silver is most satisfactory when lead concentrate is maintained at about 30% lead.

Test work on Silver Standard ore was done by Deco Ore Testing Division and Wright Engineers, Ltd., Vancouver, who designed the milling plant.

Typical feed averages per ton

GOLD	0.0635 oz.
SILVER	16.6 oz.
LEAD	1.25 %
ZINC	4.15 %
CADMIUM	0.04 %

The Result:

		Each ton Lead concentrate contains	Each ton Zinc concentrate contains
GOLD	(ounces)	1.0025	0.052
SILVER	(ounces)	366.05	17.9
LEAD	%	30.4	1.0
ZINC	%	8.2	51.5
CADMIUM	%	—	0.60
IRON	%	14.8	.65
SILICA	%	6.2	5.8
LIME	%	1.0	0.8
ARSENIC	%	6.4	—
ANTIMONY	%	1.2	—
MOISTURE	%	8.9	12.6

Used All Over the World

Other operators also have firsthand knowledge of high metallurgical recoveries made by Denver "Sub-A's." Over 33,000 Denver "Sub-A" Flotation Cells are recovering valuable concentrates—at high net profits—all over the world. Detailed information on the results you may expect from Denver "Sub-A" Flotation Machines can be determined by the Denver Equipment Company Ore Testing Laboratory.

For Your Engineering Notebook

The complete story of high flotation recovery at Silver Standard Mines, Limited, appeared in the ENGINEERING NOTEBOOK SECTION, May-June issue, Deco Trefoil. Engineering data on successful operations is supplied as a service to the industry. Reprints of Engineering Notebook Sections reporting on operations similar to yours will be sent to you without cost. Address your request to our Publication Division



"The firm that makes its friends happier, healthier and wealthier"

DENVER EQUIPMENT COMPANY

1404 17TH STREET • DENVER 17, COLORADO

DENVER • NEW YORK CITY • CHICAGO • EL PASO • TORONTO • VANCOUVER • MEXICO CITY • LONDON • JOHANNESBURG • RICHMOND, AUSTRALIA



EXCLUSIVE

*Roll Type Throttle
Control*

EXCLUSIVE

*Push Button Air
Bleeder Valve*

EXCLUSIVE

*Cylinder Mounting for
Positive Safety...
Longer Service Life*

NEW

Thor

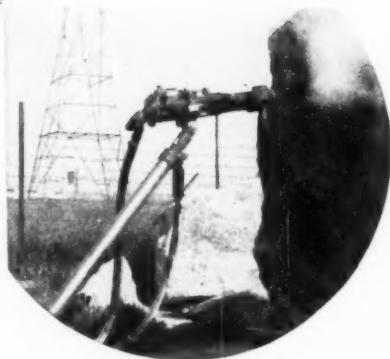
SINKER LEG

45% MORE FOOTAGE AT FAR LESS COST!

Here's real savings in labor... man hours... and drilling costs... and 45% more drilling footage by actual tests!

The miner can carry the entire setup—Thor Sinker and Thor Leg—into the smallest tunnel or closest corner, set it up in an instant, start the hole... and then let Thor do the work! All he does is control the *constant pressure feed* by operating two simple throttles—the *only automatic controls in leg operation!*

Think of the savings... both in operating costs and air consumption. With carbide bits the Thor Leg can replace drifters—and heavy mountings on scores of heavy duty operations... can drift in tunnels where drifters won't fit. Write today for catalog data.



INDEPENDENT PNEUMATIC TOOL COMPANY

AURORA, ILLINOIS

Export Division: 330 West 42nd Street, New York 18, N. Y.

Birmingham	Boston	Buffalo	Chicago	Cincinnati	Cleveland	Denver
Detroit	Houston	Los Angeles	Milwaukee	New York	Philadelphia	Seattle
Pittsburgh	St. Louis	St. Paul	Salt Lake City	San Francisco	London, England	
	Toronto, Canada		Sao Paulo, Brazil			

FULLY AUTOMATIC—A quick, easy setup—just start the hole—set the leg at any angle between 30 and 45 degrees... the leg does all the lifting—all the constant pressure feeding... control the feed with a turn of the wrist!

Thor

PORTABLE POWER

TOOLS

PNEUMATIC TOOLS • UNIVERSAL AND HIGH FREQUENCY ELECTRIC TOOLS • MINING AND CONTRACTORS TOOLS

PROMINENT MEN IN INTERNATIONAL MINING

M. Fitzgerald, manager of Western Australia's alunite industry, will go to Chile to study latest developments in the potash industry.

W. Woodhall and J. Richmond of National Pigments, Ltd., England, are inspecting ilmenite deposits near Busselton, western Australia.

William H. Hennan has been elected president of the British Non-Ferrous Metals Federation for the year 1949-50. A. L. Johnson is the new treasurer, and W. J. Terry and H. E. Jackson, vice-presidents.

J. Warren Waterhouse of Aluminium, Ltd., Canada, has been investigating the establishment of an aluminium smelting plant on the Island of Mindanao, Philippine Islands.

U. Ba Shwe of Burma has been in Australia seeking contacts for the disposal of Burmese minerals and metals.

Daniel Jones, who recently graduated from the University of Alaska, has been appointed junior assayer and field engineer for the Territorial Bureau of Mines at Nome, Alaska.

Harry Palmer is now engineer in charge of the Havenstrite Mining Company's operations at Candle, Alaska.

Fred Garbutt is now on the staff of Yukon Galena Hill Mines, Ltd., at Mayo, Yukon Territory. He had been with Vananda Mines Ltd., British Columbia.

Charles King has been appointed mill superintendent of Silver Standard Mines, Ltd., at Hazelton, British Columbia. He had held positions in Granby, Pioneer and Polaris-Taku mills, all in Canada.

A. H. Anderson, mine superintendent for New Saza Mines, Ltd., Chunya, recently returned to Tanganyika following a holiday in the United States.

Campbell W. McNeill recently was appointed service engineer and salesman by Ingersoll-Rand Ltd. at its office in Kisumu, Kenya.

Edwin W. Hunt was appointed superintendent of mines recently for Hudson Bay Mining and Smelting Company, Ltd., at Flin Flon Manitoba.

N. E. Nilsen is now chief general manager of the Emperor, Loloma and Dolphin Mining Companies and has headquarters in Melbourne, Australia. Half of his time will be spent on the Fiji Islands where he was formerly general manager at the companies' Vatukoula properties. His

past experience includes mining engineering in the Lake Superior area, U.S.A.

John Repo is working his Myrtle Creek property in the Koyukuk, Alaska, again and reports that the dredge, which he owns jointly with Frank Moliter should be completed and ready for use before the season is over.

Antenor Patino has become president of Patino Mines & Enterprises Consolidated, Inc., Bolivia, succeeding his mother, Mrs. Albina R. de Patino. She had been president since her husband's death in April 1947.

L. C. Yancey, general superintendent at El Tofo Mines, Bethlehem Chile Iron Mines Company, has been promoted to vice president and general manager of the company to succeed Paul B. Entrekin, who is now general manager of Bethlehem's mining operations. E. P. Leach, former mine superintendent, is the new general superintendent.

P. G. Odynsky resigned for Polaris-

Taku Mining Company, Ltd., and is now living in Vancouver, British Columbia.

H. R. MacRae, after two years in Ecuador with South American Development Company, is back in British Columbia.

Paul M. Tyler is in Europe as minerals consultant for the Joint Congressional Committee on Foreign Economic Cooperation. He is visiting several projects in the Near East and Africa also.

Sir Basil Goulding has been elected a director of Consolidated Zinc Corporation, Australia.

Sir Ernest Oppenheimer, chairman of the Anglo-American Corporation of South Africa, has returned to Johannesburg after his recent visit to England.

Arthur W. Heuck sailed August 23 for Cyprus to join the staff of Cyprus Mines Corporation, Skouriotissa, Nicosia, Cyprus. For several years Heuck has been in charge of the Johnson Camp Unit of Coronado Copper and Zinc Company, near Dragoon, Arizona.

E. N. Pennebaker flew to South Africa recently, where he will be engaged until December in reviewing the past two years' developments in geology and exploration at the property of O'okiep Copper Company, Ltd., Nababeep, Cape Province.



AUSTRALIAN SILICOSIS PROBLEM DISCUSSED

Dr. W. Robson of McIntyre Research Ltd., Canada, is seen here chatting with F. Vincent (Inspector of Mines, Bendigo), G. Haddon (Chief Inspector of Victorian Mines), R. McCann (underground manager), D. Christopher (Health Department) and T. Rowe (mine manager) at the Central Deborah gold mine, Bendigo. Dr. Robson recently visited many Australian mining camps in the course of conferring with Australian authorities on the prevention of silicosis. He gave lectures in principal centers on the aluminum treatment of the disease.



LATIN AMERICA

COLOMBIA—By agreement recently entered into between Colombia and the United States a commission of mining technologists is to arrive in Colombia within a short time to study a number of deposits that appear to contain radioactive substances.

BRAZIL—Zirconium reserves near Pocos de Caldas cover an area of nearly 500 hectares and are estimated in excess of 2,000,000 tons. Average content of the sand is said to be from 65 to 95 percent zirconium dioxide. Lesser concentrations of zirconium in sands occur in immense reserves extending southward from Bahia on the Atlantic coast to Rio de Janeiro. Thoria content of these last mentioned deposits varies from a low of 5 to a high of 20 percent.

SURINAM—Bauxite production is on the increase at the holdings of the *N. V. Billiton Maatschappij* now that a 9 cu. ft. shovel has been put into operation. Production in 1948 was curtailed considerably as a result of torrential rains, output falling to approximately 410,000 tons. Strike-bound the first five months of 1949,

ore produced totalled only about 130,000 tons for the period.

BRAZIL—The Brazilian Chief Executive recently authorized the *Minas do Paraopeba* to operate as a private mining enterprise.

PERU—Exports of zinc concentrates to Trail, British Columbia, have been heavy during recent weeks. For the week ending June 25, a total of 1,560 wet tons was received. *Grace y Cia.*, Callao, Peru, figures in the contract.

CHILE—*Disputada de las Condes*, the largest of the Chilean controlled copper mines, recently shut down as a result of the declining price of copper. During recent months the property had been operating at a loss of over \$30,000 monthly.

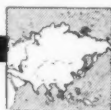
BRAZIL—A deposit of manganese ore described as huge has been disclosed recently in Mato Grosso. The deposit is near the town of Aquidauna and is described as similar to the *Amapa* and *Urucum* deposits. Probably reserves are estimated at more than 50,000,000 tons. Aquidauna is 228 kilometers up the Paraguay River from Porto Esperanca and is navigable by small ships to Rio da Prata, Argentina.

BOLIVIA—May exports of tin amounted to 2,370 tons, compared with 3,165 tons in May, 1948.

COLOMBIA—Late information from Medellin advises that the Santa

Margarita dredge No. 1 of *Nechi Consolidated Dredging, Ltd.*, began digging in early August. The new operation is on the Nechi River in the vicinity of Puerto Claver immediately below the holdings of the *Pato Consolidated Gold Dredging Company, Ltd.*, property.

BRAZIL—The First Pan American Engineering Congress opened in Rio de Janeiro in mid-July. Sessions were devoted to the mineral industries of the hemisphere.



ASIA

CEYLON—No more permits will be issued for the export of non-ferrous metals such as copper, lead and brass, from the island.

BURMA—A clause in the constitution which stated that foreign interests could work Burmese mineral resources only if Burmese capital controlled 60 percent of the agreements has been waived by the Parliament. Also, the Union of Mineral Resources Enabling Bill, granting exploration rights to foreign companies, has been passed.

SIAM—*N. V. Singkep Tin Exploration Company* has joined with a Siamese mining company to study a promising tin field recently acquired in Siam.

INDIA—At Trodi in the Balagat District of the Central Provinces, manganese has been discovered by a group of geologists. *Central Provinces Manganese Ore Company*, which has several mines in the area, requested that the Geological Survey department of the Government make the survey in hopes of finding new reserves. Other parties of the Geological Survey have found large bauxite deposits in western Sambalpur at Orissa, and some magnesite was found in the Salem District of Madras, near Ulipuram. Another party has gone to the Chakrata Hills to explore for mineral wealth in the Himalayas.

TURKEY—A chromite deposit at Sori, near the well-known *Guleman* mine, is reportedly being reopened by the Eti Bank. Eti Bank has set an annual quota of 166,000 tons of chrome mined in Turkey and expects to produce 40,000 tons from the Sori mine and 126,000 tons from the *Guleman*. Aid in reaching the quota has come from the Marshall Plan, and production has now reached 100 tons per day. The first export shipment of 45,000 tons is now en route to the United States.

INDIA—Recent prospecting in Nilambur, a Zamindari area in Mala-



NEW POWER FOR BRAZIL'S MINES

The falls of the Sao Francisco River, Brazil, known as the Paulo Afonso falls (*Cachoeira de Paulo Afonso*), that will supply electric power for the development of a variety of enterprises, among which are a number connected with the minerals industries. The region adjacent is rich in mineral resources. Installation is under the auspices of the *Companhia Hidreletrica Brasileira* (Brazilian Hydroelectric Company) and the plant will furnish an estimated 500,000 h.p. from the 80 meter fall. Completion of the project is scheduled in the near future.



Type R Crusher Sizes for
1 to 5½ in. Feed.

Nine Years on the Job... Crushing Tough Trap Rock

INSTALLED IN 1940 by Bird and Sons, E. Walpole, Mass., this *Type R* gyratory crusher has been in operation 24 hours most days reducing hard, abrasive trap rock for roofing granules.

Trap rock is tough on crushers. Yet, so little "time out" for maintenance has been required since this machine was installed that these owners say it does a remarkable job for this kind of work.

In the modern *Type R* crusher, Allis-Chalmers has achieved both maximum strength and the elimination of excessive weight. It's built of sturdy steel construction with wearing parts made of heat-treated manganese steel. Fully automatic flood-lubrication of moving parts contribute to long operating life. Resilient mountings protect crusher and building from destructive vibration.

Type R crusher gives you maximum

crushing capacity. That's due to the scientifically shaped crushing chamber... which also results in a more cubical product.

MAINTAINS EXACT PRODUCT SIZE

It's a topnotcher in operating convenience, too. "Speed-Set" control of crusher setting permits adjustment to exacting product size with turn of hand crank... easily, without stopping crusher!

Automatic Reset lowers the entire crushing head hydraulically to pass tramp iron and other uncrushable materials... then brings it back to previous setting smoothly and without shock.

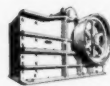
Find out more about *Type R* crusher's cost-cutting advantages from the A-C representative in your area, or write for Bulletin 07B6006E. A-C offices or distributors in principal cities in the U.S. and throughout the world.

ALLIS-CHALMERS, 985A SO. 70 ST.
MILWAUKEE, WIS.

A2653



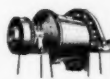
Kilns, Coolers, Dryers



Jaw Crushers



Hoists



Mills



Gyratory Crushers



Vibrating Screens

AND OTHER EQUIPMENT
FOR THE CRUSHING, CEMENT
AND MINING INDUSTRIES



Speed-Set is an Allis-Chalmers trademark

ALLIS-CHALMERS

bar, South India, has turned up the possibility of large gold deposits. Signor Luigi Usoni, Italian gold mining expert, is studying samples taken from the area and future operations depend on their assaying reports. A prospecting license has already been granted to an Indian firm to explore the Nilambur area further on the strength of information now known.

CHINA—Placer mining in the Ho-Kiang District, Hsi-Chuan Province, has been growing prosperously in recent years. Miners in the district number over 10,000. A 5½' by 2½' boat is used for washing, and transverse indentations are cut to receive the heavy particles. A maximum of about 3.73 grams of gold is recovered per day by each boat with a crew of four men.

CHINA—The phosphate rock deposits of the Sia Islands, South China Sea, have been estimated at about 1,000,000 tons, distributed throughout ten islands. The mines are run by the Chinese Navy, which appoints managers, and mined ore is all consigned to the Taiwan Fertilizer Company under the National Natural Resources Commission's direction.



RUSSIA—The Central Office of Statistics under the U.S.S.R. Cabinet has announced the percentages of metals output for the second quarter of 1949. Pig-iron production was 120 percent, steel 127 percent, copper 116 percent, zinc 124 percent and lead 115 percent. The entire metallurgical industry achieved the plan by 109 percent.

ROMANIA—The alumina plant of *Ditsosentmarton*, Transylvania, which manufactures good quality alumina, is to increase production. The capacity of the factory is reported to be 20,000 tons of alumina per year at present. A cheap source of energy is supplied from nearby *Mezoesege*, the natural gas district.

SICILY—Exports of raw sulphur, which during 1948 had considerable impetus from an agreement Italy had with France, have slumped badly, and stockpiles in Sicilian storehouses amounts to about 13,000 metric tons.

However, refined and worked sulphur exports continue to go out normally with over 77,609 quintals shipped in 1948.

SWEDEN—A new rolling mill will be completed by the first part of 1950 by *Kanthal*, *Hallstahammar* company. The mill will have a capacity of 12,000 tons of merchant bars per year.

GERMANY—*Mansfeld Copper Mine* in the Soviet Zone of Germany is scheduled to produce about 63,000 tons of copper-bearing schist per month under the Two-Year Plan in that zone. This is an increase over 1948 of 40 per cent.

WESTERN GERMANY—Kaolin deposits of good values have been discovered near *Gelsenkirchen-Buer*, Germany.

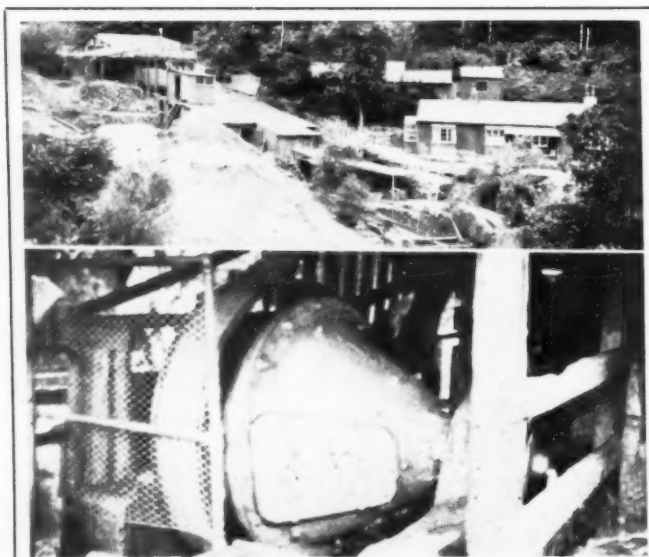
ALBANIA—Chromite production is to increase by 650 per cent over 1948 output, according to Minister *Enver Hodja*. The country has a two-year plan underway involving considerable aid from Russia. The *Mazedon* territory which includes Albania, Montenegro and South-Serbia, has known chromite deposits of good values and production will concentrate here.

AUSTRIA—Output of raw kaolin is increasing steadily, having risen from 76,384 tons in 1947 to 128,511 tons in 1948, with 1949 looking even better. Austria is also concentrating on its bauxite production, but the small size of the deposits keep the company dependent upon shipments from eastern Europe for sufficient amounts to keep its aluminum production up.

GERMANY—A one year, \$32,000,000 trade agreement between Portugal will export to Germany tungsten concentrates, pyrites and manganese ore, while Germany will export to Portugal foundry products, non-ferrous metal products and electrical equipment.

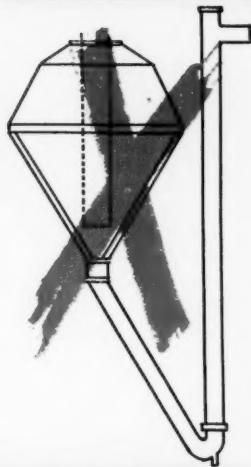
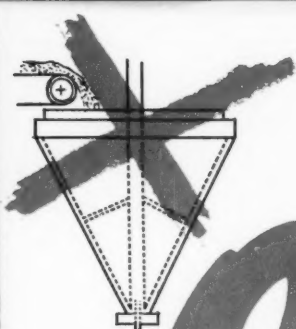
SPAIN—As the high grade iron deposits of Bilbao are approaching exhaustion, the small steel industries of Santander and Asturias are coming to depend more and more on local deposits. However, these local ores have for some years presented the aggravating problem of too high a silica content and of granularization. As a result coal consumption is higher and the price per ton of cast iron has increased. To remedy the situation Spanish steel men have found a method used in France for removing silica. England also has a method of obtaining proper granularity, but until these two methods are put into practice in Spain, production of cast iron will not suffice the needs of the home market.

PORTUGAL—Development of hematite deposits occurring in the upper Douro River area is planned by

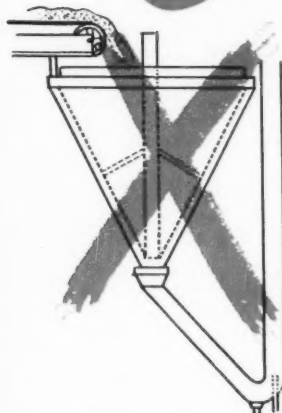


ENGLAND PROCESSES MICACEOUS HEMATITE

Progress at the Great Rock micaceous hematite mine is reported and a general view of surface installations is shown (above) and the Hardinge mill used to reduce the ore to pigment stock (below). Near Newton Abbot, Devonshire, the results of recent development are reported to be encouraging and production is being maintained at a good level. In the same vicinity, another firm is reported to be prospecting for micaceous iron ore and at the same time is treating old mine dumps and tailing piles. Pigment production of the British Isles fails by far of being sufficient to supply the demand and imports must be depended upon to supply sufficient paint.



OUT!



Displaced by AKINS Separators

Wherever Heavy Media Separation processes are used, AKINS Separators have decided advantages over the three designs above. AKINS machines are already considered standard in treatment of iron ore and garnet. New applications are being developed rapidly in other fields, especially coal treatment.

In an AKINS, the mechanical advantages and the metallurgical advantages over other existing types are of equal importance:

MECHANICAL ADVANTAGES

- 1 Eliminates compressor and auxiliary equipment.
- 2 Does not plug to interrupt plant operation.
- 3 Can be stopped and started without draining.
- 4 Low power consumption, up to 35% less (including auxiliary equipment).

METALLURGICAL ADVANTAGES

(Substantiated by 10 AKINS Separators owned by 6 companies treating iron ore, garnet and coal.)

- 1 Greater recovery of product.
- 2 Better grade of product.
- 3 The only Heavy Media Separator that can recover a separate middling product for retreatment.

HEAVY MEDIA SEPARATION PLANTS:

**6 Companies ... 3 Fields
Using AKINS Separators**

IRON ORE

Hanna Ore Co.
Cleveland Cliffs Iron Co.
Butler Bros.
Stanley Mining Co.

GARNET

Barton Mines Corp.

COAL

U. S. Coal & Coke Co.

**COLORADO
IRON WORKS
COMPANY**

No important installation of AKINS machines has ever been replaced with machines of any other make! For details and free engineering service on your application, write

COLORADO IRON WORKS CO., DENVER 2, COLORADO

Canadian Locomotive Co., Ltd., Kingston, Ont., Can.; Wright Bros., Credit Foncier Bldg., Vancouver, British Columbia Sales Agents; Head, Wrightson & Co., Ltd., Stockton on Tees, Eng.; John Carruthers & Co., (Pty.) Ltd., Sydney, Aus.; Head, Wrightson & Co., S. A., (Pty.) Ltd., Johannesburg; Edw. J. Nell Co., Manila, P. I.

the Portuguese Government. Most of the ore will be exported, but, if possible, the government will try to produce some steel for home consumption.

NORWAY—A large deposit of crystal quartz has been found at Salangsdaalen in Bardu, northern Norway, by the *Norwegian Mining, Ltd.* The area is being blocked out now and trial operations will begin within a couple of months. The deposit is claimed to be one of the largest found in Europe.

ITALY—An extensive uranium carbonate mine near Isoverde (Chiavari) was discovered by the *Deferri Galliera Waterworks Company* of Genoa, while drilling for water to supply the Tigullio waterworks. The *Rand Mining Company* of Johannesburg, South Africa, has secured a research permit from the Italian Government on behalf of British mining interests, but Deferri has purchased an important extension of sites in the neighboring ground.

HUNGARY—A large plant, comprising blast furnaces and steelworks, is to be built in Mohach at the Danube near the bituminous coal mines of Pech. The plant will produce about 500,000 tons of steel annually by the end of 1954, and Hungarian steel pro-

LARRY SEAMAN, project manager for Iron Mines Company of Venezuela, a subsidiary of Bethlehem Steel Company, is in Guiria, Estado Sucre, where the company is building a port from which to ship iron ore. He will return to Caracas, his home base, when the port is finished.



duction will reach about 1.5 million tons by then. Present tonnage is 800,000 per year. The location of the plant is advantageous as cheap transportation of iron ore from Yugoslavia and Russia is ensured by the Danube River. Soviet iron ore is now used exclusively in Hungarian blast furnaces, since the cessation of shipments from Yugoslavia, but these may some day begin again.

YUGOSLAVIA—Construction of the aluminum works at Strinischche, Slovenia, started by the Germans during the war, but still unfinished, are far from being completed since Hungary refused to deliver necessary equipment after the Cominform statement against Yugoslavia. Building of the factory has been stopped altogether, and only a small amount

of unimportant work is being done around the empty buildings. Thus bauxite production in Yugoslavia is badly affected as the home alumina production is not more than a few thousand tons, and no bauxite export is possible. However, some Western European states are interested in the Yugoslavian aluminum industry, and foreign capital investments are rumored. Yugoslavia is no longer shipping iron ore to Czechoslovakia and Hungary because of the Cominform dispute but may go to Austrian and Italian customers, if trade agreements can be drawn up. The open pit mines at Priedor, Bosnia, are almost idle. Lead stockpiles have increased to 4,000 tons which ordinarily would have gone to Cominform countries. Now Yugoslavia is trying to find western European lead buyers, with small success so far.

ITALY—The Italian Interministerial Reconstruction Committee has decided that the 1927 mining law should be amended with a provision that in case of important mining researches such as those covering oil, iron, chrome, uranium and other valuable minerals, research permits be issued only to concerns the capital of which is partly in the hands of the Government.

"Forced" AMALGAMATION



with the **TITAN** Rotary Amalgamator

Milling and mining operators get forced amalgamation with a Titan, recovering up to 98% of free gold content! Simple and economical to operate, the Titan Rotary Amalgamator is designed to withstand the most rugged wear—continuous and rotary action of the plates achieves high efficiency . . . no fouling . . . clean-up is simple and fast. Write for full details today.

Manufactured Exclusively by
MILL & MINE SUPPLY, INC.
2700 FOURTH AVE. S. SEATTLE 4, WASH.

Smelting on Site

with

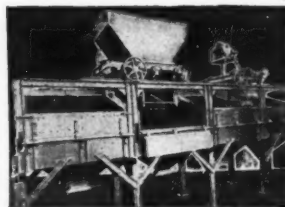
MACE Furnaces

and

Sintering Hearths

Saves high transportation and treatment charges on your ores and concentrates.

Wire or write for new catalog.

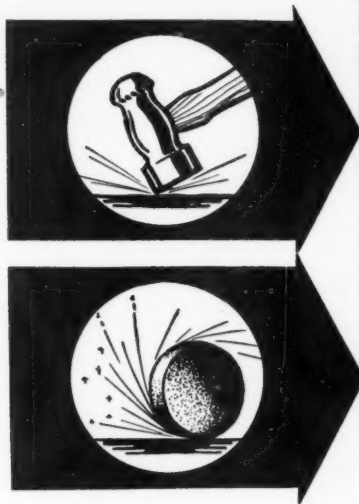


Standard sizes 5 to 250 tons capacity. Working scale tests on ton lots or larger made at our Denver smelter. Send us an analysis for preliminary report.

The Mace Company

FIRE CONCENTRATION METALLURGISTS

2763 BLAKE STREET, DENVER 5, COLO., U.S.A.



IMPACT

ABRASION

COSTLY WEAR FACTORS IN MILLING COUNTERED BY AMSCO® ALLOY STEELS

AMSCO STANDARD MANGANESE STEEL

"The toughest steel known" resists abrasion well under severe impact. Here's a service comparison of liners in a Colorado gold mine.

MATERIAL	TONNAGE GROUND
Heat treated alloy steel	87,838
AMSCO standard manganese steel	131,729

AMSCO SPECIAL MANGANESE STEEL

For greater wear resistance than standard manganese steel . . . and to withstand shocks equally well.

Material	Service	Tonnage Ground
Standard manganese steel	6 mo.	17,256
AMSCO special manganese steel	10 mo.	24,618

AMSCO CHROMIUM-MOLYBDENUM STEEL

Where impact resistance is secondary to extreme abrasion resistance, use Amsco uniform analysis "chrome-moly."

Material	Cost per Ton Milled
Standard manganese steel	.007405
AMSCO chromium-molybdenum steel	.006839

In your grinding mill two powerful forces of wear are always there . . . impact and abrasion. The extent to which each of these forces is present depends on a number of factors that vary with every mine. Among these factors are: type and condition of ore, size and speed of mill, size and total load of balls or rods, and design of liner.

It is in the correct weighing of all these factors that our experience added to yours can be of tremendous service. As a result of Brake Shoe research and development, we can recommend the particular alloy to use for all of the internal castings of your mill . . . to give optimum resistance to impact or abrasion (according to grinding conditions) and thereby greater tonnage before replacement is necessary. Amsco now offers mill parts such as liners, grates, and feeder lips in a range of alloy steels to meet most combinations of impact and abrasion. The case histories on liners listed here show typical results when Amsco recommended steels are used.

All uses for Amsco castings in mines and quarries are described in Bulletin 743M

AMERICAN

Brake Shoe

COMPANY

AMERICAN MANGANESE STEEL DIVISION

CHICAGO HEIGHTS, ILL.

Foundries at Chicago Heights, Ill., New Castle, Del., Denver, Colo., Oakland, Calif., Los Angeles, Calif., St. Louis, Mo.
Offices in principal cities. In Canada: Joliette Steel Limited, Joliette, Que.



AFRICA

SOUTH AFRICA—A 125-ton mill to treat tungsten ore found on its property at Nababeep has been completed by the *O'okiep Copper Company, Ltd.*, Union of South Africa.

SOUTH AFRICA—Recently discovered nickel deposits on the Cape-Natal border have been estimated to contain thousands of millions of tons of high grade ore, and South Africans feel they will soon compete with Canada in nickel exports to the world. The nickel is mixed with platinum, silver, copper and gold, and lies on the surface in heaps which can be easily mined by the open-pit method. A special report on the deposits has been given to the government by Dr. D. L. Scholtz, professor of geology at Stellenbosch University. The government has issued a prospecting and mining license to a Johannesburg syndicate to start work at once and expects the mine will boost the Union's dollar and sterling reserves.

TANGANYIKA—Tailings at the *Bwana Chai* gold mine, Lupa Goldfields, Tanganyika, are being treated by C. W. Johnstone and his associates at the rate of about 2000 tons per month.

TANGANYIKA—A new wolfram discovery has been reported in the Karagwe tin field near Bukoba.

BELGIAN CONGO—According to

a statement by E. Sengier, chairman of the executive committee of the *Union Minière du Haut Katanga*, his company is going ahead with plans for enlarging the plant and installing hydroelectric units. Furthermore, he said that the company was in a favorable position because of moderate production costs and would continue expansion in spite of the unsettled condition of the nonferrous metal market.

ALGERIA AND MOROCCO—A noticeable increase over 1948 in Algerian and Moroccan mineral production is reported for the first quarter of 1949. Minerals showing the greatest rise in tonnage in Algeria are antimony, barite, iron ore, phosphate and calamine. In Morocco greater production is recorded for antimony, manganese, lead and phosphate.

FRENCH NORTH AFRICA—Iron production in Algeria, Tunisia and Morocco, which fell in 1943, following the war, to a monthly average of 25,000 metric tons, has since come back to normal and is constantly increasing. The average in 1948 was 239,000 tons for the three territories. In the first quarter of 1949, production was 290,100 metric tons and in March alone figured 292,200 tons. The record year for production so far was 1938 with 366,700 metric tons.

SOUTH AFRICA—*De Beers Consolidated Mines Ltd.* has reconditioned and reopened the *Jagersfontein* diamond mine in the Kimberley district. The mine, which had been closed for 17 years, produces gem diamonds of fine quality as well as good grade industrial stones.

GOLD COAST—*Gold Coast Main Reef* has started prospecting in the Mbeasi Nsuta area, south of Tuapim, where geologists believe substantial gold deposits lie. The company treated 104,204 tons of ore from its other properties in the past year and recovered 41,826 oz. of gold.

TANGANYIKA—*Greita Gold Mining Company's* milling operations made a profit during the last few months, offsetting losses at the end of last year, according to a *Kentana Gold Areas* report to shareholders. Favorable developments are reported at the *Ridge 8* and *Geita* mines, and native labor is being added to the payroll.

NORTHERN RHODESIA—*Rhodesian Broken Hill* mine at Broken Hill has an estimated 15 years of mineable lead-zinc ore left if prices do not go lower, according to S. S. Taylor, chairman of the board. His statement came as a result of controversial discussion as to the life of the mine.



OCEANIA

AUSTRALIA—The coal strike in Australia, which has gone on for over a month, has affected every coal-using industry in the country. For example, *Broken Hill Proprietary's* production of pig iron at Newcastle, New South Wales, dropped 18,087 tons from May to June. *Mount Lyell Mining and Railway Company, Ltd.*, ceased production of refined copper at its Tasmania plant. *Broken Hill Associated Smelters Pty., Ltd.*, has reduced smelting operations and ceased production of refined lead at Port Pirie, South Australia. The Government is thrashing out the problem through the arbitration system, and, with the return of some Queensland and Western Australian coal miners to work, the end of the strike is hoped soon to be in sight.

AUSTRALIA—The *Austral Malay Dredging Company*, now combined with *Placer Development, Ltd.*, of British Columbia, is engaged in extensive placer tin prospecting in Northwestern and Central Australia, according to recently received reports.

NEW SOUTH WALES—The Australian Broadcasting Commission has reported the arrival of the seven thousand ton Italian ship "Laura Laura" at Newcastle with the first cargo of Russian manganese since the war. The ten-thousand tons of manganese ore are to go to the *Broken Hill Proprietary*. The ship trav-



New Gold Bar for Needed Dollar Credit

Pouring a gold bar in the clean-up room of the Van Dyk Consolidated Mines, Ltd., the ultimate product of a part of the 3,000 tons of ore that is put through the plant daily. Assaying on the average of 3.634 dwts. per ton, it requires nearly 5.5 tons of ore to produce one ounce of gold. The ore is first crushed, reduced in a battery of 12 tube mills. Although one of the Wittwatersrand great gold mines, the company is hard pressed to maintain the property in operation. Working profits for the first six months of 1948, the last period for which they are available, show a profit of only £86,785 before taxes. This was derived from a total revenue of £942,045.

*Speed for the job!
Safety for the
man!*



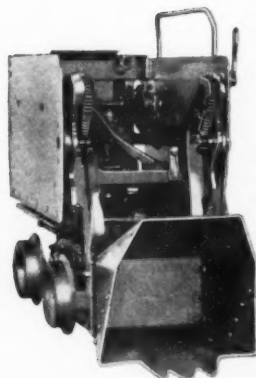
Gardner-Denver "Big Bite" GD14 Mine Car Loader

You Want Both

Faster loading of bigger tonnages—cleaner mucking in less time—plus greater safety for their miners! That's how operators throughout the mining world are proving the superiority of Gardner-Denver Mine Car Loader design.

And what's behind this remarkable record of performance? You'll find the answer in superior Gardner-Denver engineering—backed by

ninety years of manufacturing craftsmanship. Gardner-Denver knows underground mining problems. Gardner-Denver Mine Car Loader specifications were developed under actual working conditions. That's why you'll find every feature of the "Big Bite" GD14 Loader exactly suited to your underground mucking needs.



Gardner-Denver GD9 Mine Car Loader—Companion to the GD14—for use where low headings require a smaller loader—sturdy and fast mucking.

EXTRA POWER AND SPEED—For loading large mine cars are provided by two 5-cylinder radial air motors. Both motors function in the powerful crowding action—a result of the famous Gardner-Denver fulcrum principle.

EXTRA WIDE CLEANUP RANGE—Loads scattered muck faster. Adjustable swing stops provide four digging positions on both sides of the track. Automatic centering device positively centers dipper before discharging—is easily disengaged for loading on curves.

EXTRA SAFETY FOR THE OPERATOR—Low center of gravity protects operator—assures maximum stability on the track. Clean exterior design—with a minimum of outside piping and conveniently located controls—and sturdy operator's platform—are other important safety factors.

EXTRA SHOCK PROTECTION—Power automatically cuts off just as dipper reaches upper or lower limit—protects against unnecessary shock. Equalizer evens pull on dipper chains—minimizes crowding shocks. Heat-treated forgings are used throughout for extra strength and toughness.

GREATER SIMPLICITY—Simple shaft drive through beveled gears minimizes wear and friction. Built-in line oiler and easy-to-reach fittings simplify lubrication. Loader easily knocked down into sub-assemblies for moving through small shafts or raises.

For full information on the "Big Bite" GD14 Mine Car Loader, or on the sturdy, smaller GD9, write Gardner-Denver Company, Quincy, Illinois.



GARDNER-DENVER

SINCE 1859

Export Division: 233 Broadway, New York 7, N. Y., U. S. A.
Gardner-Denver Company, Quincy, Illinois, U. S. A.
In Canada: Gardner-Denver Company (Canada) Ltd., Toronto, Ontario

REDUCE DOWNTIME

with YUBA DREDGE PARTS

**Made for all dredges long-wearing
built to fit exactly quick delivery.**



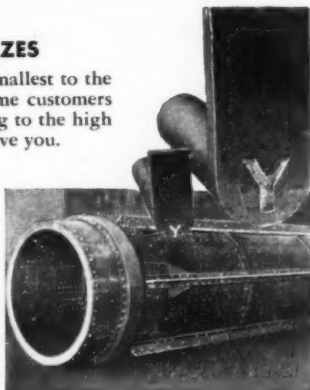
Yuba pioneered the use of alloy steels and heat-treating in the manufacture of dredge parts. You are sure of long-wearing, tough parts when you buy Yuba bucket pins, Abrasion Resisting and Manganese Steel screen plates, tumblers, ladder rollers, pumps, and other dredge parts. Yuba parts are carefully machined, enabling you to make field replacements quickly, and keep your shut-down time to the minimum.

BUCKET PINS OF ALL SIZES

Yuba makes bucket pins from the smallest to the largest diameters, and has supplied some customers with pins ever since 1912; thus attesting to the high quality and satisfaction our pins will give you.

A. R. S. SCREEN PLATES

Yuba Abrasion Resisting Steel screen plates were developed especially for tough dredge service. Holes are taper drilled, uniformly spaced, to give you efficient and accurate screening. A.R.S. plates are stocked in all usual thicknesses from 1/4" up.



Yuba parts, such as bucket pins and A.R.S. screen plates shown here, increase average daily running time and profits.

Only OPERATING time is profitable time for you—so write, wire or cable your spare parts requirements NOW and have them on hand. We will send you prices and delivery information immediately. No obligation. Remember, we furnish parts for all bucket ladder dredges, whether Yuba design or not.

YUBA MANUFACTURING CO.

Room #710, 351 California St., San Francisco 4, California, U. S. A.
AGENTS: BIME, DARBY & CO., LTD., SINGAPORE, KUALA LUMPUR, PENANG.
SHAW DARBY & CO., LTD., 14 & 15 LEADENHALL ST., LONDON, E. C. 3.
CABLES: YUBAMAN, SAN FRANCISCO - SHAWDARBCO, LONDON



Yuba will build special equipment to your order. Complete steel fabricating, forging and machine shop facilities available. Send us your blue prints or specifications for prices.

elled direct from Poti, near Batum, on the Black Sea.

VICTORIA—Because of the "impossibility of obtaining spare parts and materials together with existing labor disabilities" Freeburgh Dredging, N. L. has suspended operations. Dredging will be resumed when supplies have been built up. Yield in the four weeks ending June 3 was 34,600 yards for 78 ounces. J. Farrington is superintendent.

NEW SOUTH WALES—Unprecedented floods on the New South Wales coalfields have intensified the national coal shortage, and hit the steel industry hard. Four of Newcastle's main heavy industries, Broken Hill Proprietary, Lysachts, Rylands, Stewarts and Lloyds have closed down. Production was interrupted. (at the Aberdare Extended, flood waters from Bellbird Creek poured into the pit through an open cut) and washaways along transport lines will result in coal piling up at the pit heads.

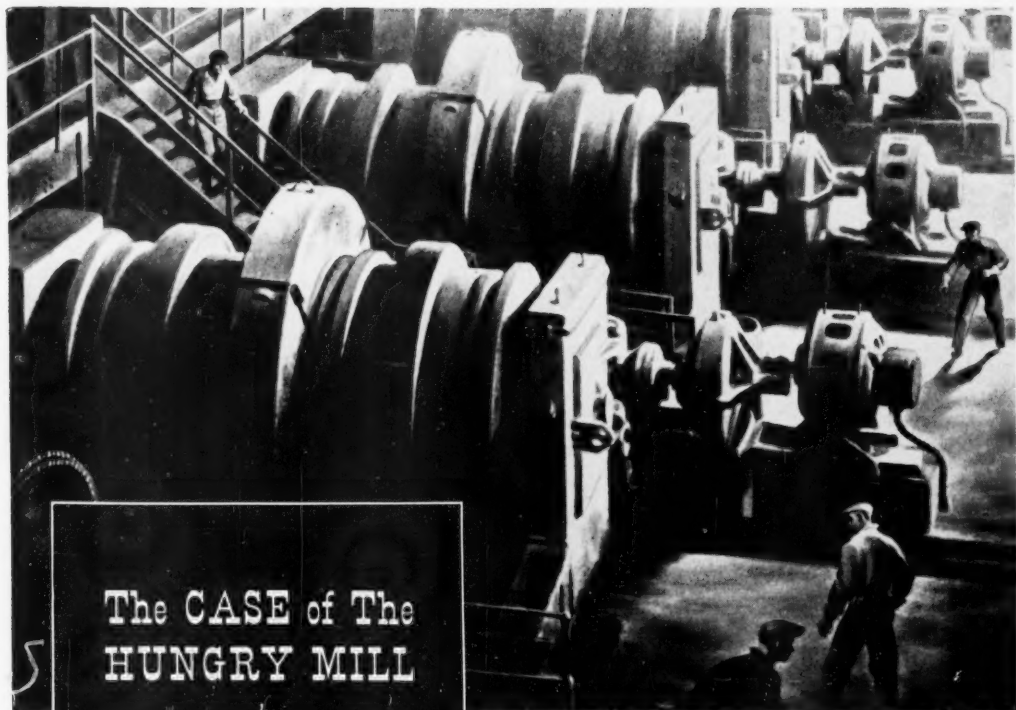
AUSTRALIA—The big lag in Australian steel production is underlined by Commonwealth Government permission to import steel from Japan for New South Wales railways. Reports from Japan state that steel from Yawata iron works is being loaded at Moji for Australia. Permission has also been given to import 20,000 steel rails from France.

QUEENSLAND—Opposing a claim for time and a half for Saturday work, double time for Sunday work, and ten percent extra pay for afternoon and night shift workers, made by the Australian Workers Union, J. Bubbs, of Mount Morgan Ltd., said that if the claims were granted, Mount Morgan Ltd. would face a loss of £25,414 on the year's operations. C. G. Fallon, secretary of the union supporting the claims, said that the prescribing of additional rates for Saturday and Sunday work was so well established in other states that the time for bringing the Mount Morgan award into line was long overdue.

TASMANIA—A titanium pigments plant has been established by Australian Titan Products, Ltd., at Heybridge, near Burnie. During this year output will be five tons per day and next year will be increased to seven and then 10 tons daily. The company is a subsidiary of British Titan Products Company, Ltd.

NEW GUINEA—Bulolo Gold Dredging, Ltd., reached a peak post-war production record in May of 9,322 oz. of gold from dredging of 1,314,900 cu. yds. of gravel, an increase of 2,700 oz. over the previous month. The company is operating eight dredges.

WESTERN AUSTRALIA—The Nevoria gold mine in the Yilgarn goldfield carried out preliminary work before the war, indicating a large tonnage of ore, but the results



The CASE of The HUNGRY MILL

There were once two grinding mills running side by side. One ate only moderate amounts of raw ore and yet seemed always overloaded, never able to turn out the tonnage expected of it. The other mill was a MARCY Low Pulp Line mill. It ate raw ore ravenously—never seemed to get enough, and always delivered more than 100% of its grinding capacity rating. The difference in performance of these two mills was the result of the way each was built.

The first mill was a typical trunnion overflow mill which always runs nearly half full of pulp at normal speeds. The result is a volume of pulp which tends to buoy up or cushion the grinding medium and allows the all too familiar balanced load condition which cannot utilize all the power made available by the driving motor.

The MARCY Mill, because of its low pulp line, always seemed nearly empty. The pulp was much thicker, and the grinding medium, coated with thick pulp, delivered a full impact drop, crushing the ore much faster. Because of the

pulp thickness and the smaller pulp volume, the load was fully unbalanced; the driving motor had to deliver full torque to pull this higher effective load, which in this instance paid off in 29.6% faster grinding and proportionately lower costs per square foot of floor space.

This is a true story taken from records of operating milling plants. The point is that no other design of grinding mill can equal the capacity of a Low Pulp Line MARCY, size for size. If this is of any importance in your grinding section, ask us to give you the facts on MARCY grinding under your conditions. Our engineers can show you how MARCY mills will save you money in other ways too. Write for our free engineering services.

OTHER PRODUCTS

Massco Fahrenwald Flotation Machines; Genuine Wilfley Tables; Massco-McCarthy Hot Millers; Rock Bit Grinders; Density Controllers; Belt Feeders; Rubber Pinch Valves; Assay and Laboratory Supplies and Equipment; Complete Milling Plants.



The **Mine & Smelter**
SUPPLY COMPANY

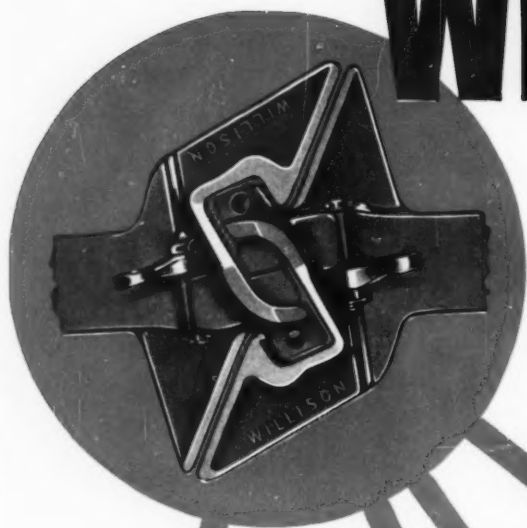
CONTACT YOUR NEAREST MASSCO
OFFICE—Main Office: DENVER, COLO.,
U.S.A.; El Paso; Salt Lake City; 1775
Broadway, New York, N. Y.
Representatives: Canadian Vickers, Ltd.,
Montreal; W. R. Judson, Santiago and Lima;
The Edward J. Nell Co., Manila, P. I.;
Sterling Chemical & Ore Corp., 80 Broad St.,
New York 4, N. Y., for Continental Europe.

WILLISON

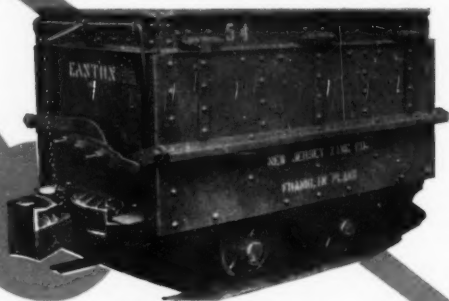
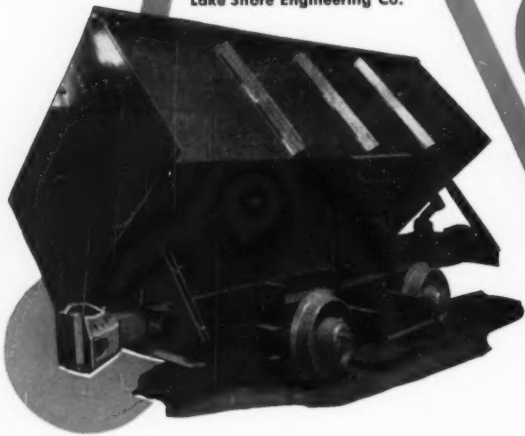
for Lower

Here is why cars equipped with Willison Automatic Couplers will simplify your haulage problems and save you money.

1. The simple, rugged design of Willison Automatic Couplers keeps maintenance costs at a minimum. The coupler consists of essentially two parts: the head and the lock. There is no pivoted hook or knuckle—stresses are received by the coupler body



Photograph by courtesy of
Lake Shore Engineering Co.



Photograph by courtesy of
Easton Car and Construction Co.



Photograph by courtesy of
C. S. Card Iron Works

NATIONAL MALLEABLE AND
WILLISON AUTOMATIC COUPLERS • NACO STEEL WHEELS • NACO

automatic COUPLERS

Haulage Costs and Greater Safety

without the interposition of a single movable part. Great strength per unit weight is inherent in this basic design.

2. Willison Automatic Couplers provide the maximum in safety. No manual assistance is needed for coupling. Workmen needn't go between cars to uncouple them.

3. The wide gathering range and identical contours of Willison Automatic Couplers facilitate car handling. You're not on a "one way street" with Willisons—all couplers are alike. Locomotives, mantrip, service cars and other equipment never need to be reversed in order to couple. This saves time—and time costs money.

4. Because Willison Automatic Couplers eliminate damaging slack, they permit higher speed haulage with maximum stability and greater protection to rolling stock. The resulting smoother train operation reduces surging, spilling, and danger of derailment.

5. The versatility of Willison Automatic Couplers has made possible a large variety of applications. Cars of all sizes in nearly every type of service have been equipped with Willisons. Specify Willisons on your equipment—there's a suitable application for every car and job.

NATIONAL MALLEABLE AND STEEL CASTINGS COMPANY
Cleveland, Ohio

SOME OF THE MANY USERS OF WILLISON COUPLERS

Allegheny Pittsburgh Coal Co.

Allied Chemical & Dye Corp.

(Sawtooth Division)

Aluminum Company of America

Armstrong Coal Company

Australian Iron & Steel Ltd.

(Australia)

Australian State Mines (Australia)

Bethlehem Steel Company, Inc.

Bethlehem Pacific Coast Steel

Corporation

Black Star Coal Corp.

Buckeye Coal Co.

Calumet & Hecla Consolidated

Copper Co.

Christopher Coal Co.

Cleveland Cliffs Iron Co.

Colorado Fuel and Iron Co.

Consolidation Coal Co.

Corpus Christi (Texas) Steel

Deere Corporation

Dodge Light Co.

Eastern Gas and Fuel Association

Hess Coal Co.

H. C. Price Coal Co.

Hebburn Colliery (Australia)

Jackson Coal & Coke Co.

Inland Steel Co.

International Salt Co.

Lake Shore Mines, Ltd. (Canada)

Laramie Collieries (Texas)

Laramie Collieries (Texas)

Laramie Collieries (Texas)

Lynch Steel Works (Texas)

(Texas)

Mather Collieries

Matheson Allied Works, Inc.

New Jersey Zinc Co.

North Range Mining Co.

Ottawa Iron Mining Co.

Pack's Run Coal Co.

Pickens-Mather & Co.

Pioneer Coal Co.

Pittsburgh Coal Co.

Potash Company of America

Porter Mining Co.

Persepolis Coal Co.

Republic Steel Corp.

Simpson Creek Collieries Co.

South Union Coal Co.

Steel Company of Wales (Wales)

(Wales)

Tennessee Coal, Iron, & Railroad

Company

Tennessee Copper Co.

Trotter Coal Co.

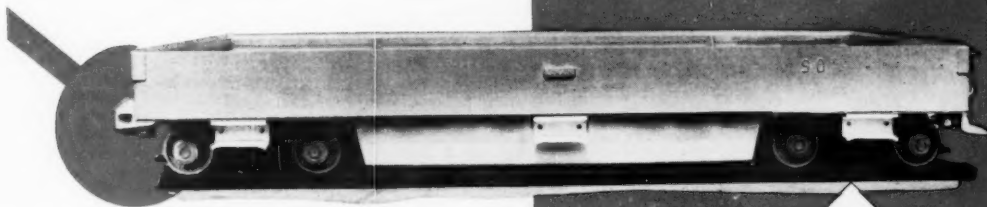
U. S. Coal and Coke Co.

Vanderbilt and Great Western Mines

(Wales of South Africa)

Walton Coal Co.

Westmoreland Coal Co.



Photograph by courtesy of
Carnegie-Illinois Steel Corp.

NATIONAL
Products
FOR TRANSPORTATION
AND INDUSTRY



STEEL CASTINGS CO.
STEEL LINKS AND SWIVEL HITCHINGS

INTERNATIONAL

were not pursued and work was discontinued. Now reports say that a company is being formed to take advantage of the favorable state of the property revealed in a consulting engineer's report. The 25 gold mining leases covering 478 acres are potentially capable of being profitably worked, according to this survey.

NETHERLANDS INDIES—*N. V. Gemeenschappelijke Mining Company*, a large tin producer in the country, increased its production at Billiton during the past year because of the added tin ore tonnage put out

by the Indonesians. A good part of this ore is treated at the company's Arnhem Smelter. Also, development of the alloy section continued favorably. An interest in Consolidated Tin Smelters, Ltd., is held by the company and continues a good investment.

WESTERN AUSTRALIA—*Great Western Consolidated* is preparing to make a magnetometer survey of the Bullfinch-Southern Cross belt. The area is the site of the *Bullfinch* mine which the company purchased several months ago and is now developing.



NORTH AMERICA

CANADA—Base metal mines in Canada are to receive the same federal government assistance that gold mines have been getting. All new base metal mines will be allowed a three-year tax-exempt period from the time they start production. This concession, in addition to depreciation and pre-production expense deferments will be of considerable assistance especially to marginal producers in the face of recent declines in metal prices.

BRITISH COLUMBIA—*Aluminum, Ltd.*, parent company of *Aluminum Company of Canada*, which at present is undertaking a \$1,000,000 exploration program to determine the most feasible site for a proposed new plant in British Columbia (probably at Kitimat or Kimsquit on the west coast), reports net earnings for 1948 amounting to \$27,329,642. The company also controls *Northern Aluminum Company* in England, *Demerara Bauxite Company* in British Guiana and *Saguenay Power Company* in Quebec.

BRITISH COLUMBIA—*Kenville Gold Mines* has completed the addition of a flotation unit to permit recovery of lead and zinc concentrates at its *Blewett* mine. The conversion was made to enable the mill to handle ore from the *Van Roi* mine, silver-lead-zinc property in the Slocan. Approximately 150 tons daily will be handled on a contract basis.

NOVA SCOTIA—The Nova Scotia Department of Mines has nine diamond-drilling outfits operating throughout the province carrying out drilling for operators testing various mineral occurrences. Special attention is being paid to rare mineral possibilities in Lunenburg County. Tin, molybdenite and fluorite occurrences have appeared in the area, and these as well as old tin and molybdenite workings which will have to be unwatered will be examined.

ALASKA—A five-man prospecting party left Juneau recently to search for base metals, copper in particular, in the Wrangell Mountains. Fred Wann, mining engineer, is in charge, and reported that seven tons of equipment and two tons of food were taken into the ore fields.

BRITISH COLUMBIA—*Cariboo Gold Quartz Mining Company*, with operations near Wells, is exploring the possibilities of the fault zone underlying Jack of Clubs Lake between the mine and the property of the nearby *Island Mountain Gold Mines*, according to General Manager G. A. Gordon. President W. B. Burnett re-

Now PERFECT PERFORMANCE WITH THE NEW 36 INCH ALL CAST STEEL CATE SCRAPER

- ★ New full, open type body
- ★ Properly curved, well protected wearing shoe



- ★ Renewable reversible blade
- ★ Throat completely clear. No tripping action.

Here's the scraper that's engineered to your requirements — and it's the lowest priced steel scraper on the market today. Save time, save costs with this rugged, field proven scraper.

WRITE FOR PRICES

Cate

EQUIPMENT CO.
49 EAST 916 SOUTH
SALT LAKE CITY, UTAH

ported to the recent annual meeting that the results so far confirmed their "best hopes." Dr. A. C. Skerl, consulting geologist, says the company can be reasonably sure of 250 feet of backs above the 2,000-foot level under the lake bottom.

IDAHO—The Apache Mine, Hailley, Idaho, recently opened its new mill, the first mill to be put into operation in the area since the war. The primary crushing department was completed in May with the building of the coarse ore bin and loading ramp for installation of the conveyor to the Blake type crusher. Other installations include the fine ore conveyor, elevator, vibrator, Simons cone crusher and four Wilfley pumps. The new water system to the mill is also ready for use.

CALIFORNIA—The profitable system of leasing is being used to considerable extent in California's Grass Valley gold district. *Empire-Star Gold Mines* is doing no mining of its own (property maintenance only) since lessees are working its entire property. The *New Brunswick claims of Idaho-Maryland Mines* are partially leased out also. Development by private small outfits appears to benefit both parties where company operation alone ends in small or no profit.

MEXICO—While the National Railways, Mexico's largest and government-administered, has improved greatly service to the mining industry, even better transportation is now being asked for faster movement of ores from mines to smelters and refineries. Stepped-up export deliveries would be an aid in face of the progressively decreasing prices for lead, copper and zinc by allowing deliveries to be made while prices are still relatively high. The Railways has improved service 20 percent; however, a 50 percent increase is set as a more effective goal.

MEXICO—*Cia. Minera de Saino Alto*, Zacatecas, a mercury mining company, has asked the labor ministry for permission to suspend work because operations are proving unprofitable. Indemnifications for some 200 workers who will be dismissed are being arranged by the ministry.

BRITISH COLUMBIA—*Brooklyn-Stemwinder Gold Mines* is shipping an average of 70 tons of ore daily from its Phoenix, B. C., camp to its mill at Greenwood, five miles distant.

BRITISH COLUMBIA—Preliminary preparations are being made in the Portland Canal area of northwestern British Columbia to get the *Morris Summit Gold Mines* into production. This property is located near the Salmon River, and Colonel E. M. Thomson, president of the company, maintains that the tonnage of ore in the A and B blocks, to be developed by a 600' shaft raise from the main

N. N. KOHANOWSKI resigned as district superintendent for the Bolivian company, *Cia. Aramayo de Mines en Bolivie*, and is assistant professor of geology at the University of North Dakota, Grand Forks, N. D.



haulage level to the upper level, represents sufficient ore to supply a 100-ton mill for three and a half years. He estimates the dollar value of the ore block at approximately \$3,800,000.

NORTHWEST TERRITORIES—*El Pen-Rey Gold Mines, Ltd.*, is examining four groups totaling 3,600 acres in the Indian Mountain Lake area. Prospecting is also in progress on a 12-claim group in the Basile Bay area along the south shore of Great Slave Lake and on an 18-claim group in the McRea Lake area.

QUEBEC—*Joliet - Quebec Mines, Ltd.*, Noranda, is discussing the lease of 25 acres of its property to *Noranda Mines, Ltd.*, in order to extend a drift from its north boundary through an unexplored section of Joliet's land to the leased section. A proviso would be attached that any ore found along the drift belongs to the latter. Further exploration on present Joliet

holdings would be carried out with the funds received from leasing the property.

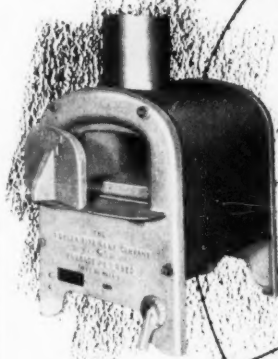
MANITOBA—With the dwindling of ore reserves at *Sherritt Gordon Mines, Ltd.*, *Sherridon* mine, the company is developing a new mine at *Lynn Lake*, and equipment at *Sheridon* will be available for the operations there. The copper-nickel reserves at *Lynn Lake* are sufficient on a 2,000-ton-per-day basis for approximately 12 years. A 1,000' five-compartment shaft has been completed and underground headings are to be driven out to the ore zones. The present program calls for drilling of the ore zone between the 1,000' and 2,000' levels. The company is currently developing a new metallurgical process for the recovery of nickel and copper by leaching.

BRITISH COLUMBIA—*Coast Iron Company, Ltd.*, Vancouver, has resumed shipments of iron ore to *Wenatchee*, Washington, at the rate of about 2,060 tons monthly. This amount is expected to be increased to 10,000 tons monthly through the opening of new working faces. The company has abandoned the open-pit shovel method of mining and is now blasting the ore and sorting it by hand to get a higher percent of iron—about 65 percent.

MEXICO—Mexican mining has been spared temporarily at least, the

GENERAL PURPOSE LABORATORY FURNACE

by DFC



Here is a small, compact gas fired furnace ideal for assaying. The muffle is 9 1/4" wide by 15 1/4" long by 4 3/4" high; plenty of room for eight 20-gram crucibles.

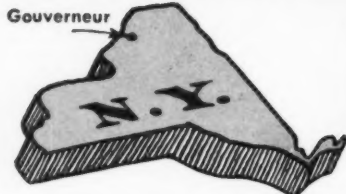
These inexpensive, yet efficient furnaces are very quiet in operation and require no blower system. All parts are standard and are easily replaced.

The
DENVER FIRE CLAY
Company
EL PASO TEXAS NEW YORK N.Y. SALT LAKE CITY UTAH
DENVER, COLO. U.S.A.

Ask for Model 250. Additional information gladly sent on request.

**RockerShovels
at work for**

LOOMIS TALC



An Eimco Model 128 loading talc
at Loomis Talc Mine

Eimco RockerShovels working deep in the earth are helping produce Gouverneur Fibrous Talc, a very old, rare and valuable ingredient in some of our common important everyday products such as paint, ceramics, paper, rubber and many other items.

The W. H. Loomis Talc Corporation, producers of this material, have, after numerous tests, standardized on Eimco RockerShovels for loading the talc into mine cars for transportation to the surface.

RockerShovels are standard equipment wherever mining is being done — because RockerShovels stay underground longer without coming up for repairs; provide greater

protection for the operator; and, load more tons per shift, day in and day out, than any other comparable machine.

RockerShovels are better on every count — write for more information on any of the 3 underground models — Model 128 for 1 ton per minute; Model 21 for 2 to 3 tons per minute and Model 40 for 4 to 5 tons per minute.

EIMCO

THE EIMCO CORPORATION

The World's Largest Manufacturers of Underground Rock Loading Machines

EXECUTIVE OFFICES AND FACTORIES — SALT LAKE CITY 8, UTAH, U. S. A.

BRANCHES: NEW YORK, CHICAGO, BIRMINGHAM, EL PASO, SACRAMENTO, MANILA

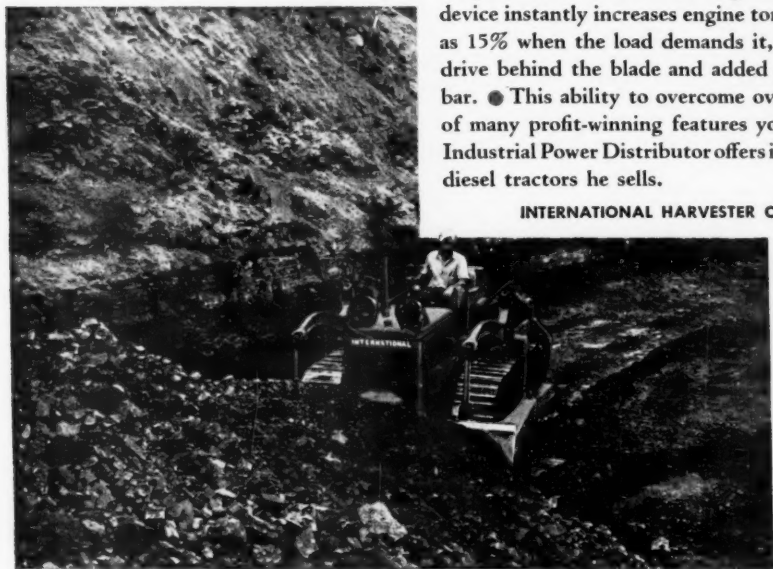
AFFILIATED COMPANIES: SOCIETE EIMCO, PARIS, FRANCE
EIMCO (GREAT BRITAIN) LTD., LEEDS, 17, ENGLAND
AGENTS IN ALL PRINCIPAL COUNTRIES THROUGHOUT THE WORLD.

R99



Hidden power to pull through heavy going gives every International diesel crawler the winning advantage in work capacity. ● Governors with built-in torque control assure a bulldog hang-on. This device instantly increases engine torque as much as 15% when the load demands it, putting added drive behind the blade and added pull at the drawbar. ● This ability to overcome overloads is but one of many profit-winning features your International Industrial Power Distributor offers in the International diesel tractors he sells.

INTERNATIONAL HARVESTER COMPANY • CHICAGO



For cleaning off overburden, building access roads, feeding shovels or pushing coal or ore to hoppers or chutes, International diesel crawlers excel. From the TD-9 shown here, to the mighty TD-24, you have a choice of four heavy-duty tractors to fit your needs.

**Standards
on Power
that Pay**

CRAWLER TRACTORS
WHEEL TRACTORS
DIESEL ENGINES
POWER UNITS



**INTERNATIONAL
INDUSTRIAL POWER**

INTERNATIONAL

general strike that was looming because of the mining depression and uncertain economic status of Mexico. According to Agustin Guzman V., secretary-general of the Mexican Miners Union, all locals have been instructed to ignore previous strike preparations which would have attempted to enforce another pay hike. This action of the top mine labor leaders has been regarded as an indication of defeat for communist agitation among the miners and allied workers.

NEVADA—Round Mountain Gold Dredging Company, Round Mountain, Nevada, is constructing a large plant at its huge dredge operation, and hopes to have it operating by late 1949.

NORTHWEST TERRITORIES—Discovery Yellowknife Mines, Ltd., Yellowknife, announced that with the installation and operation of both amalgamation and cyanidation units, a daily production of 100 tons of gold ore will be reached. Ore will come from north and west zones. The property has two levels at present at 125 and 250', and the company expects to sink a shaft to 375' to allow for another level. Known ore deposits lie

laterally and at depth, according to drilling results.

ONTARIO—In the Porcupine area, Central Porcupine Mines Ltd.'s exploratory drilling has turned up visible gold in quartz veins. A diamond drill hole was cut into the company's property from Coniaurum Mines 650' level and the two-foot wide inter-section was made 300' inside Central Porcupine's boundary. Several feet beyond that, another quartz stringer showed visible gold.

Truck Haulage

Continued from Page 38

accessories that will make the trucks currently in use do a better job.

Among these items is the torque converter. The use of Allison converters with 190-hp. engines was described above. However, testing on heavier engines is going forward. A two-speed, 3-stage, Twin Disc torque converter has been installed in a Euclid TD chassis with 275-hp. Cummins NHS engine that is used as a tractor for pulling a 92W semi-trailer of 25 cu. yds. capacity hauling a 40-ton pay load.

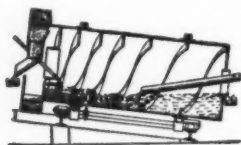
A Spicer torque converter has been installed in one of the 20-ton Euclid TD rear dumps with 275-hp. Cum-

mins engine that is standard Hanna haulage equipment.

One of the reasons that the torque converter has been slow in invading off-highway haulage in the mining field, where it has long been granted a logical place, is that manufacturers had not developed a unit that would stand up behind the powerful engines required. Now, three manufacturers have definitely made the initial effort to produce a satisfactory unit. Use of the units at Hanna has been too short to make any determination of results, but both manufacturers and operators are optimistic about the possibilities.

Controllable radiator cooling fans are also in use and improving engine performance. Eaton Manufacturing Company of Cleveland produces one fan that is electrically controlled, cutting in at slow speed when the temperature reaches 185° F. and full on at 190°. Another fan, manufactured by Evans, is designed so that radiator water enters the fan thermostat to control the pitch of the blades. Each type has its advantages.

Kysor shutters which are thermostatically controlled to open when the radiator temperature reaches 175° are also performing in a promising way.



*"Heavy media separation?
... easy!"*

"Shure, 'n there's nuthin' to it with a Hardinge Counter-Current Classifier. Separates me heavy ore out slick ez a whistle—leaves it *clean* too. No movin' parts inside t' wear out, ither. If ye got separation troubles, jist write Hardinge. Ask 'em fer Bulletin 39-B-3."



HARDINGE

COMPANY INCORPORATED

YORK, PENNSYLVANIA — 240 Arch St. • Main Office and Works
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 6
SAN FRANCISCO 11—24 California St. • 200 Bay St.—TORONTO 1

Be a regular subscriber to MINING WORLD with which is combined MINING JOURNAL

The complete American Edition

U.S., North, South and Central American countries—\$3.00 per year
All other countries \$4.00

SUBSCRIPTIONS IN STERLING

Subscriptions in Sterling are accepted from all Sterling areas if sent to P. J. Sergeant, Mining World, c/o Barclay Bank, 72/73 Cheapside, London E. C. 2.

Includes Annual Mine Development
and Directory Number

13 ISSUES

Published at
SAN FRANCISCO, CALIFORNIA U. S. A.

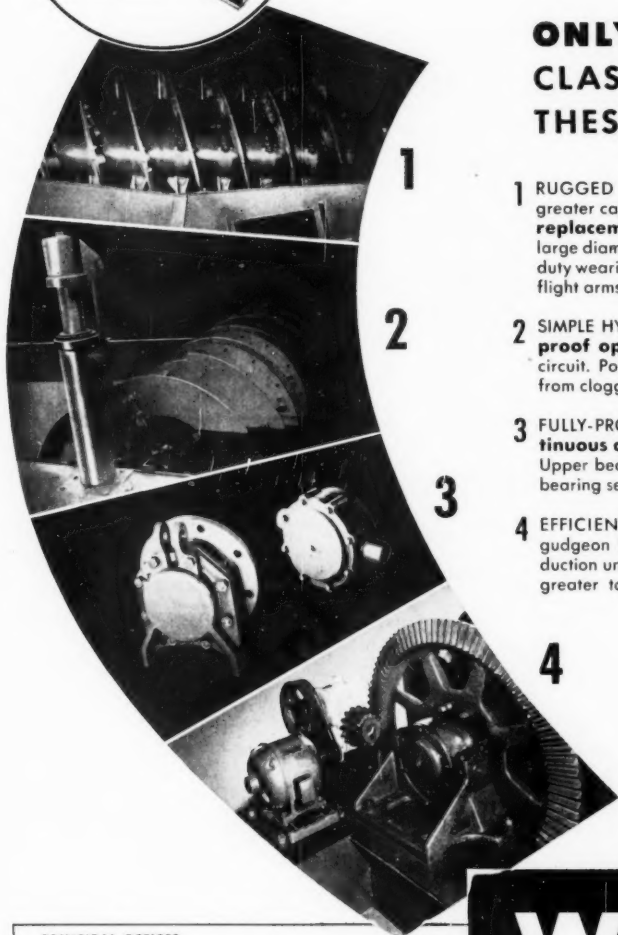


WEMCO
S-H CLASSIFIER

MODERN DESIGN

makes the difference!

ONLY THE WEMCO S-H CLASSIFIER GIVES YOU THESE ADVANTAGES:



- 1 **RUGGED SPIRAL ASSEMBLY** to provide up to 100% greater capacity with minimum **lost time** and **lower replacement costs**. Exclusive advance pitch spiral, large diameter shaft—up to 40% stronger; thick, heavy duty wearing shoes; short, cast-steel, large cross-section flight arms.
- 2 **SIMPLE HYDRAULIC LIFTING DEVICE** for **easy, fool-proof operation** by remote control in or about the circuit. Powerful, uniform action, complete protection from clogging or jamming.
- 3 **FULLY-PROTECTED BEARINGS** for dependable, **continuous operation**. Ball and roller type throughout. Upper bearing lubricated only **once a year**. Lower bearing sealed and grit proof.
- 4 **EFFICIENT DRIVE** with heavy duty main gears, simple gudgeon bearing mounting and cone-type gear reduction unit. **Compact, easy to maintain**, permits greater tonnage with **one size smaller motor**.

Only WEMCO gives you these outstanding mechanical advantages—the result of progressive, modern design which makes WEMCO "Best in Classifiers."

PRINCIPAL OFFICES

Los Angeles • Sacramento • Salt Lake City • Spokane
Pocatello, Idaho • Denver • Phoenix • Chicago
Hibbing, Minnesota • Bartow, Florida • New York

EXPORT DISTRIBUTORS

The Ore and Chemical Corporation
80 Broad Street • New York 4, N.Y.
Continental Europe and North Africa
Dr. Ing. Herbert Lickfett A/B, Stockholm 3, Sweden
Milieu Dense, Paris, France
Ferdinand Egeberg & Company, Oslo, Norway
Macchine ed Impianti Ing. Donati & Co., Milan, Italy
A. Schubert & Company, Basel, Switzerland
G. Maltiniotis & Co., Athens, Greece
Agence Minière et Maritime, S. A. Antwerp, Belgium
Adil Gabay & Albert Koenke, Istanbul, Turkey

WEMCO

WESTERN MACHINERY COMPANY

760-766 FOLSOM STREET • SAN FRANCISCO 7, CALIFORNIA

WKE (HMS) Mobil-Mill • Coal Spiral • Standard Thickeners
(HMS) Thickeners • (HMS) Media Pumps • Hydroseparators
(HMS) Densifiers • (HMS) Separatory Cones • "SH" Classifiers
Sand Pumps • Conditioner and Agitators • Fagergren Flotation
Machines • Dewatering Spirals • (HMS) Laboratory Units

NEW METHODS - NEW EQUIPMENT

FREE
MANUFACTURERS'
LITERATURE

THE DOW CHEMICAL COMPANY recently completed their 19th "Flotation Index," which is a complete bibliography of available material on the flotation process. Also, "Flotation Fundamentals," a comprehensive handbook covering flotation from beginning to end. A copy of each is available upon request.

MACK TRUCK will gladly send you detailed information on their many sizes of trucks, with complete specifications.

DENVER EQUIPMENT COMPANY'S new manual on flotation, "Denver Sub-A Flotation," covers the discovery, theory, application, new developments, flexibility and results. Request bulletin No. F10-B29. Address: Denver Equipment Company, 1404 Seventeenth St., Denver 17, Colorado.

KENNAMETAL, INCORPORATED'S new "Booklet on Drilling," also "Rotary Drill Bits" and "Core and Drag Bits" give you complete information on the subject. All three booklets are available upon request.

Copies of all bulletins may be obtained by writing MINING WORLD, 121 Second St., San Francisco 3, Calif. Please refer to bulletin number and issue in which it appeared.

EUCLID ROAD MACHINERY COMPANY offers you the recommendations of a hauling equipment specialist. They will gladly answer your questions without obligation to you.

MILL AND MINE SUPPLY COMPANY will gladly send you complete details of their Titan Rotary Amalgamator.

PACIFIC FOUNDRY COMPANY, LTD. offers complete data on their multiple hearth furnace for roasting, calcining and drying.

CATERPILLAR TRACTOR COMPANY will gladly send you specifications on the new "Cat" Diesel Engines and Electric Sets. Send your request to: Caterpillar Tractor Co., Box MW-79, Peoria, Ill.

MAGNOLIA METAL COMPANY has just released a leaflet describing its new D-Z-L heavy-duty, genuine babbit for sleeve bearings subject to combined weight, heat and shock. D-Z-L is recommended particularly for connecting rods and main bearings for Diesel engines, large compressors and for Pitman or eccentric bearings of trap rock crushers. The

company has also published a new price list covering Magnolia die-cast bronze bearings for replacement service on Nos. 3A, 9 and 11 Banbury Mixers.

JOY MANUFACTURING COMPANY has developed a new Joy Sulmet rock bit, designed for general drilling application. Send request for details to MINING WORLD.

E. D. BULLARD COMPANY'S complete catalog of personal protective equipment and industrial safety devices has just been issued. Send for your copy.

AMERICAN MANGANESE STEEL DIVISION of American Brake Shoe Company recently published a new bulletin, "Alloy Steels for Ball Mill Liners and Grates." Copies of Bulletin 449-ML are available upon request.

CATERPILLAR TRACTORS' new 16-page booklet, "Slope Stake to Final Grade With Caterpillar Equipment," features the complete package of heavy-duty equipment that is "Caterpillar" powered from slope stake to final grade.

MINE SAFETY APPLIANCE'S new bulletin, No. CW-3, covers the M.S.A. Oxygen Therapy Unit, a professionally designed instrument for administering oxygen on a demand-regulated basis. Send for a copy.

DINGS MAGNETIC SEPARATOR COMPANY'S bulletin No. C-1100-A describes their new permanent drum type, non-electric Alnico Magnetic Separator, complete with shaft and V-belt drive sheave, for automatic tramp iron removal.

JOY MANUFACTURING COMPANY recently announced their new diesel-electric shuttle car. Write for complete details.

COAST MANUFACTURING AND SUPPLY COMPANY has literature available on their fuse lighting and timing device, Spittercord, which promotes safety and at the same time improves operations.

COLUMBIAN STEEL TANK COMPANY offers you complete details of their agitators, thickeners, solution tanks, ore bins and other mining equipment.

STEPHENS - ADAMSON COMPANY will send you information on their modern ore handling and conveying equipment.

INTERNATIONAL CONSULTANTS

MARK C. MALAMPHY & CO., LTD.

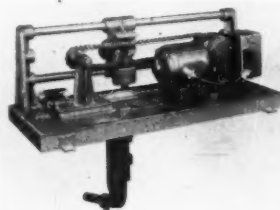
Consulting Geologists and Geophysicists. P.O. Box 209, Mufulira, Northern Rhodesia. Experienced field crews available for examinations and surveys anywhere in Africa.

Cummins Has New
Diesel in Production

A new supercharged NHRS-600 Cummins Diesel Engine is now in production, according to an announcement made by the Cummins Engine Company, Inc., Columbus, Ind. Available in automotive, industrial and marine models the new and improved high-speed diesel engine develops 300 hp at 2100 rpm.

The NHRS-600 is patterned after the proved design of the NHR-600, and continues the Cummins policy of developing diesel engines with lower weight per horsepower.

Complete information on the new supercharged NHRS-600 diesels may be obtained by writing: MINING WORLD, 121 Second St., San Francisco, Calif.



Hardinge Automatic Sampler with cover removed shows wet cutter attached beneath. The reciprocating cutter carriage is driven by an extended pin on the chain. In this particular model the vertical cutter-support bar moves horizontally along the rubber-shuttered slot in the sampler base; the material being sampled flows toward the observer, beneath the sampler base. The open face of the cutter, through which the sample enters, is away from the observer in this view.

Hardinge Co. Now Offers
Automatic Samplers

Hardinge Company, Incorporated, York, Pa., has secured manufacturing and sales rights to an accurate and rugged sampler. This device is being placed on the market as the "Hardinge Automatic Sampler."

The sampler takes periodic "cuts" (or samples) from a stream of moving material, either wet or dry, at any stage in a continuous process. It is particularly adapted to the mining, stone products, ceramics, chemical and allied process industries.

The unit is entirely automatic and can be set to operate periodically at a variety of time intervals from 5 to 60 minutes. When activated by a time switch, the sample cutter moves horizontally at a constant speed across the stream of moving material, diverting a representative sample into a sampling launder or container. The cutter movement is carefully controlled to avoid stroke speed and length variation during each cutting operation.

Capitol Concentrates

Continued from Page 14

the attempt after secret talks with top Munitions Board officials. They convinced him that a one-year supply acquired during peacetime, which Senator Thomas loudly declared to be enough, would not be sufficient in case of war.

● Nonmetallics Included

The list of minerals subject to percentage depletion is growing. Senator Johnson of Colorado has succeeded in adding an amendment to H. R. 5268 which extends the allowance to perlite and diatomaceous earth.

● Act Is Misinterpreted

The Stockpile Act of 1946 stated that one of its purposes was "to decrease and prevent wherever possible a dangerous and costly dependence of the United States upon foreign nations." The Congress intended this to mean helping domestic industry to be strong and healthy, keeping it on an operating basis by purchasing here at over-market prices if necessary. For this reason it implemented the policy by writing into the act the "Buy American" clause. But the Administration interprets the language differently. It feels there will be no "dangerous and costly dependence" so long as the stockpiles

are well filled with foreign metals and minerals prior to a war.

● Baring Proposal Has Merit

If the Administration really wants to do something for domestic mining through the stockpiling program and does not like the Murray-Engle bill, it should take another look at the Baring bill, H. R. 5697. This bill is short, sweet, and to the point. The point is that it firms up the "Buy American" clause of the Stockpile Act and adds a new wrinkle or two.

Representative Baring (Nevada) wrote the bill after a conference with President Truman. Baring said he was impressed with Truman's reference to possible aid through purchases for the national stockpile. "There is money in the budget for stockpile purposes," Baring remarked. "I want to see how far it will go toward putting the domestic mining industry back on its feet."

● More On Gold Price

Although it appears that all gold legislation is dead in this Congress and the Administration has not changed its attitude a bit regarding raising the price of gold, the pressure from other countries for an increase remains great. The result of the latter is a cycle of rumors—some based on fact, some plain wishful thinking—

which continually jiggle the stock market.

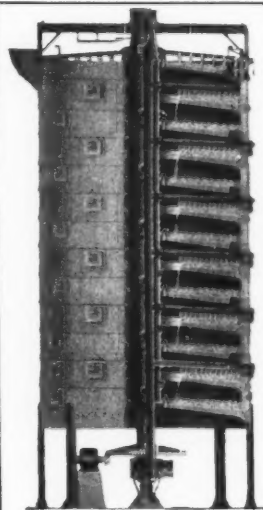
The most recent such rumor is that the International Monetary Fund will seriously consider raising the price of gold at a meeting of its board scheduled for this fall. The chances of approval from the U. S. Treasury are slim and without that, as a practical matter, nothing can be done.

● Interest in Gold Increases

With the decline in metal prices, mining investments in gold are reported to be increasing. There undoubtedly is a very considerable feeling that the gold price will be increased one of these days and the stories carried by the press such as a recent item from Johannesburg, S. A., help stimulate the trend.

● Measure Probably Vetoed

The Senate hearings on S. 2320, a bill to subsidize mercury, antimony, manganese, and tungsten out of customs receipts, are reported to have made it reasonably plain that Senator O'Mahoney does not favor the bill due to its restricted scope. He remarked that the committee favored a measure which would aid the mining industry generally. Informed sources state that the bill does not conform to the President's policy and, if passed, would, therefore, be headed toward a veto.



SIZES 8' 6" TO 22' 3" DIAMETER
NUMBER OF HEARTHS, 1-16

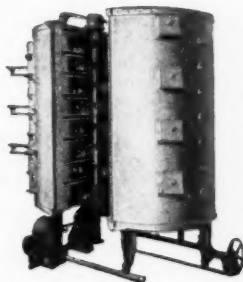


MULTIPLE HEARTH FURNACE

ROASTING • CALCINING DRYING

ZINC ORES	QUICKSILVER
IRON ORES	MAGNESITE
COPPER ORES	LIMESTONE
TIN ORES	MOLYBDENUM ORES
NICKEL ORES	BONE CHAC
LEAD ORES	DIATOMITE
SODA ASH	LIME SLUDGE
FULLERS EARTH	MAGNESIUM
CARBON	CLAY GRANULES
PYRITE	ANTIMONY

AND FOR NUMEROUS OTHER MATERIALS



Pacific Laboratory Furnace is manufactured in two sizes—36" and 54" inside diameters having 6-8-10 Hearths and include the same features as the commercial size furnace.

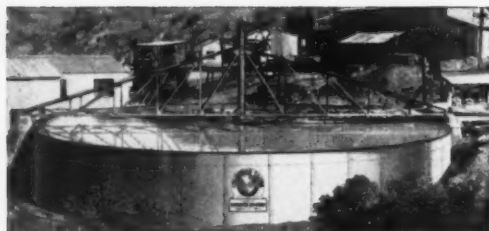
PACIFIC FOUNDRY COMPANY LTD.

Engineers and Metallurgists

1400 SO. ALAMEDA ST., LOS ANGELES

3100 19th ST., SAN FRANCISCO

551 FIFTH AVE., NEW YORK



**QUICK
SHIPMENT**

**COLUMBIAN
BOLTED STEEL
MINING EQUIPMENT**

AGITATORS • THICKENERS • SOLUTION TANKS • ORE BINS, ETC.

No costly delays. Your order is handled in record time by an expert staff of engineers and designers. Then it is fabricated in one of the best equipped manufacturing plants in the Mid West, with modern presses especially designed for the purpose.

Lower your costs with Columbian Mining Equipment for permanent installation, yet portable if change in location is necessary. Standard construction for domestic use or for export by ocean freight. Special if for export via mule-back or airplane to final destination. Order from distributors listed below—or write direct for complete facts.

COLUMBIAN STEEL TANK CO. • Kansas City, Mo.

Distributors in the United States

Denver Equipment Company
1400 Seventeenth Street, Denver, Colorado
Eimco Corporation
14 South 4th West Street, Salt Lake City, Utah
Western Machinery Company
760 Folsom Street, San Francisco, California

Distributors—Foreign

Western Machinery Co., S. A.
Apartado Postal 215
Avenida Ejercito Nacional 454-D
Colonia Chapultepec Morales
Mexico, D. F.

T R O N A SODA ASH

a quality product

**AMERICAN POTASH & CHEMICAL
CORPORATION**

3030 W. Sixth Street Los Angeles 54, California

GOLD

10. And a river went out of Eden to water the garden; and from thence it was parted, and became four heads.

11. The name of the first was Pison; that is which compasseth the whole land of Havilah, where there is gold:

12. And the gold of that land is good; there is bdellium and the onyx stone. Genesis 2: 10-12.

From this quotation we see that gold had a place in the very earliest recorded history. Later when we come to the history of Abram it is recorded that "Abram was very rich in cattle, in silver and in gold." In that sentence we have the very essence of all trade and finance—the cattle as a ready trading commodity, with the "hard money" metals for the settlement of debit and credit balances. This stood good in all their intertribal and international contacts. In all the centuries since then none of the financial experts have been able to invent a better or more sure commercial and financial foundation.

In the early days of this century a company was formed to operate a new industry in the United States. The writer was responsible for the payrolls—four payrolls monthly of around \$5,000 each. This was a sizeable operation in those days. Partially as a matter of convenience, and partially as a psychological action we always paid in hard money. Those workmen had gone through the stresses of the 1890's. It was a pleasure to watch the satisfaction with which the men received that money. Wages were not high then, but the few coins made a pleasant tinkle and tingle in the hands. It was not uncommon to see a man fondle a \$20 gold piece in his hands and then kiss it. That feeling toward gold is worldwide today. There is not a businessman of 65 or upward in the U. S. who would not give his eyeteeth, even if they are false, if he could again feel the same satisfaction and comfort that possession of a few gold coins, or the good, old yellow-backed bills gave.

In 1933 a leading New York newspaper stated that the devaluation of the dollar and the gold policy was decided on in January of that year. This was never contradicted by any competent authority. We also know that a close adviser of the incoming administration lost his affiliation because his book stated that certain policies were agreed upon early in the year, but it was considered inadvisable to make them public then. Was it necessary to have distress conditions in order to gain acceptance of those policies?

When the pen was drawn through the sentence "We pledge the honor of the United States to pay . . ." the worst blot was then placed on our financial record. The world has not forgotten it. We voice no further criticism here, except to say that that inaugurated the system of "government by subterfuge" that has persisted to this day. We need not describe the faults of the Keynes' financial policies which our Treasury has followed so closely. The results in Britain point out its dangers. This, in spite of the fact that British industrial production is greater than in prewar days.

There has been considerable argument about the effect our policies have had on world gold prices. There is, however, one established fact. Before the present fluctuations of currencies began, the formal balance sheet of the largest gold producer in India showed that their year's average sale price was \$44 per ounce in terms of U. S. dollars. It certainly is no cheaper today except where blocked by official decree.

Before the war we armed Japan with cotton and scrap iron. During the war we financed Franco by our mercury purchases. Today, our gold policy helps Joe Stalin in his armament program. More of this later.

THE WANDERER.

MINING MEN AND THEIR ACTIVITIES

About men who are well known and prominent in American metal mining circles

Crispin Oglebay has resigned as president of Oglebay, Norton and Company, Beaver Bay, Minnesota, to become chairman of the board. *Robert C. Norton* moves from vice-president and treasurer to the position of vice chairman. New members appointed to the board include *Fred R. White, Jr.*, *Henry P. Rankin*, *E. W. Sloan* and *Harrie S. Taylor*, the new president of the company.

C. W. Berry is residing at 45 Miramonte Road, Walnut Creek, California. He is wire rope mill superintendent for Columbia Steel Company, Pittsburg, California.

A. F. Hallett was recently elected chairman of the Magdalena chapter of the New Mexico Miners and Prospectors Association and will help to stimulate prospecting for radioactive minerals. He is chemist for the American Smelting and Refining Company at Magdalena.

H. R. Buckles has been made mine manager for Noland Mines, Ltd., at Spruce Creek, Atlin, British Columbia. The company is a recently incorporated subsidiary of Transcontinental Resources, Ltd.

R. A. McLeod and *Chuck McLeod* are exploring possible mineral deposits in the Kootenay district this year. They are well known for their successful prospecting in Yellowknife, Ontario and British Columbia.

Frank E. Love, who was mining engineer for the U. S. Smelting, Refining and Mining Company in Alaska, has returned to the United States and is living at Boulder City, Nevada.

Gordon M. Miner is shift boss for Pend Oreille Mines and Metals Company, Metaline, Washington. He had been sales engineer for Goodman Manufacturing Company in West Virginia.

John B. Botelho recently joined the Callahan Zinc-Lead Company, Sargents, Colorado.

Richard T. Hamilton is now at 2513 Willacres Place, Dallas, Texas. He has been connected with mining interests in Nevada.

M. P. Boyle was recently appointed resident manager of International Uranium Mining Company's operations at Great Bear Lake, Northwest Territories, Canada. *Norman W. Byrne* has been engaged for consulting engineer and *Dr. Paul Armstrong* is consulting geologist.

Marshall G. Jones has been promoted by St. Joseph Lead Company to manager of the Edwards Division, Balmat, New York.

George D. Oliver and *R. H. B. Jones* are surveying coal and iron deposits in the coastal area of British Columbia. Jones is from Duluth, Minnesota, and Oliver from Brandon, Manitoba.

John H. Stitzer has moved from Chisholm, Minnesota, to Ironton, Minnesota. He is engineer in charge of explorations for the Snyder Mining Company, Hibbing, Minnesota.

Allen Marchbank is at present living in Yosemite National Park (P. O. Box 187), but intends, this fall, to build a road to the mine he and his partners, *Lee* and *Ray Marchbank* and *Norman Wade*, operate and to buy a new Gibson mill and get under way again. The mine is the Blue Glory at Mariposa, California.

Marshall Haney, mining engineer, Takoma Park, Maryland, recently compiled the examination of a 20,000-acre iron property in Virginia for New York interests. His office is at 1037 Flower Avenue, Takoma Park.

Walter E. Heinrichs, Jr., and *Robert Thurmond* are doing consulting work in mining geophysics at Jerome, Arizona. They recently resigned from the Newmont Mining Company of Nevada.

Ken Merklin of San Francisco has been transferred to Hibbing, Minnesota, as Mesabi range sales representative for the Western Machinery Company. *Galen de Longchamps* has resigned as manager of the company's Hibbing office and is now living in Hollywood, California.

A. H. Shoemaker of Hailey, Idaho, was recently elected president of the Idaho Mining Association. *Henry L. Day*, Wallace, Idaho, was made vice president and *Harry W. Marsh*, Boise, is secretary.

Parke M. Potter is at Michigan College of Mining and Technology, Dundee, Michigan, for the next twelve months.

W. Spencer Reid is now manager of the Utah Department of the Amer-

ican Smelting and Refining Company at Selby, California, succeeding, *R. D. Bradford*, who is now general manager.

George W. Wunder has been advanced from assistant plant manager to plant manager at MacIntyre development Division of the National Lead Company, Tahawus, New York.

J. D. Carter has become assistant general purchasing agent of the western division of Kennecott Copper Corporation. He will continue his duties as assistant purchasing agent for the Utah Copper division and will coordinate purchasing of the Nevada, Arizona and New Mexico branches of Kennecott.

Herman T. Reifel, division superintendent in charge of construction, maintenance and operations for the range division of the Minnesota Power and Light Company, Eveleth, retired June 1.

R. J. Mechin has moved to the New York office of St. Joseph Lead Company. He had been manager of the Edwards Division at Balmat, New York for some time.

A. L. Johnson, former underground superintendent for Pickands Mather and Company in the Iron River district of Michigan, has been made assistant superintendent at the Cary mine on the Gogebic range. He has been succeeded at Iron River by *Arthur Martini*, former captain at the Zimmerman mine.

W. M. Mahan has returned to his former headquarters at the United States Bureau of Mines, Sponge Iron Plant, Laramie, Wyoming, after a six months temporary transfer to the Salt Lake City Station of the Bureau. He reports that the Laramie Sponge Iron Plant is still in a standby condition with plans for the future indefinite.

Robert Crist has transferred from the engineering department of Butler Brothers, Cooley, Minnesota, to Ironton on the Cuyuna range with the Hanna Coal and Ore Company.

Earl F. Foster is in Querrero, Mexico, with Cia. Minera Nacional, Aptdo. Postal Num. 19, Taxco.

John Matusovic and *Charles Ayres* of Alleghany, California, have made a contract with Yellowjacket mine in Sierra County to sink a 60 degree inclining shaft.

Mark Evans, who has been doing assessment work on his placer at Burgdorf, Idaho, during the summer, has returned to Wallace, Idaho, where his address is Box 693.

Carl Lindstrom, *John Zupet*, *Emil Hansen* and *Norman Cowan* have re-

HARRIE S. TAYLOR has been elected president of Oglebay Norton and Company, Beaver Bay, Minnesota. He has been with the company since 1936 and moves up from the position of vice president in charge of mining operations. He is also a director of Lake Carriers' Association and Lake Superior Iron Ore Association.



tired from Homestake Mining Company, Lead, South Dakota. Lindstrom had been with the company 44 years, lastly in the metallurgical department. The other men were with the mining department and had 39, 34 and 23 years of service at Homestake, respectively.

Ralph E. Calhoun has been appointed southwestern representative for the American Zinc, Lead and Smelting Company. He is at present at Dumas, Texas, where he is attached to the smelter owned by the company's subsidiary, the American Zinc Company of Illinois. Calhoun has worked for the company since 1924.

I. M. (Ike) Stewart is a new vice-president for Union Carbide and Carbon Corporation, New York. He will continue to hold his positions as assistant to the president and vice president of several Union Carbide subsidiaries.

B. E. Pheneger has been made assistant to the vice president of operations of American Steel & Wire Co., with headquarters at Cleveland, Ohio. He was Duluth, Minnesota, district manager for the company and his place there will be taken by L. J. Westhaver, who has been general superintendent of the Donora, Pennsylvania Steel and Wire Works of American Steel.

Professor Murray Riddell of Michigan College of Mining and Technology, Houghton, Michigan, directed

SEND IN YOUR NEWS

Have you changed your position recently or do you have up-to-the-minute news on a mining operation in your country? If you have we would be very interested in receiving this information.

Readers of this section of WORLD MINING are interested in news of mining people and mining activities from all over the world.

Send your news to: MINING WORLD, 121 Second St., San Francisco 5, Calif.

40 students and six representatives from Michigan mining companies on a tour this summer of iron, coal, gold, copper and oil properties in the country.

Donald M. Davidson has been elected vice president of the E. J. Longyear Company, Minneapolis, Minnesota.

John B. Siri has been put in charge of the 50 ton concentrating mill at Westgate, Nevada, owned by Broken Hills Mining and Milling Co. He recently operated some mining property at Klondyke near Goldfield.

John H. Cone, assistant superintendent for the New Park Mining Company, has been stationed at Dragerton, Utah, recently.

Forbes B. Cronk, general mining engineer for the Oliver Iron Mining Company, Duluth, Minnesota, retired July 1, after 44 years service. He has been succeeded by J. F. Wolff, former assistant general mining en-

gineer, whose place will be taken by L. J. Severson.

Frank M. Estes can be reached at 208 E. Cherry Circle, Memphis 11, Tennessee, where he has moved after some years as manager for Cia. Minera Choco Pacifico, S. A., Colombia.

Obituaries

J. L. Hastings, former general purchasing agent of Phelps Dodge Corporation, died at his home in Glendale, California, late in July.

Harvey M. Ross, 89, died July 14 in Seattle, Washington. He was one of the original incorporators of Sidney Mining Company, Kellogg, Idaho, and president of the company until his retirement several years ago.

Addison Hills McKay, 83, director of Labrador Mining and Exploration Company, vice-president and director of Quebec Smelting and Refining, Ltd., and president of Kaymack Investments, Ltd., and of McKay Exploration, died July 5 in Montreal, Quebec, Canada.

H. Louis Schermerhorn, 81, past president of Grandview Mines, Inc., and of Meteline Mining and Leasing Company, died July 29 in Spokane, Washington.

Edmund W. Mudge, 79, director of the National Steel Corporation, and well known for many years in the Lake Superior iron ore country, died July 1.

DETACHABLE BITS HOT MILLING

● We will hot mill, re-temper and harden the popular types and sizes of rock bits.

● We re-shank, re-thread, and re-condition any type, size, or length of Drill Steel.

● We manufacture and maintain a complete stock of new drill rods, gads, chisels, spades, and all other tools used in Pneumatic Paving Breakers or Jack Hammers.

EMSCO CONCRETE CUTTING COMPANY

2751 East Eleventh Street

Los Angeles 23, California

AN 3-4151

For Rent

Large and small portable air compressors, paving breakers, jack hammers, chipping hammers, pneumatic tools, and air hose.

We specialize in concrete cutting and demolition work.

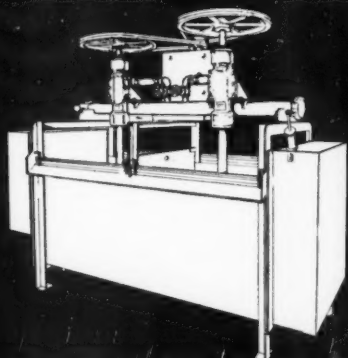
EMSCO
AIR HOSE COUPLINGS

Dependable, Prompt Service

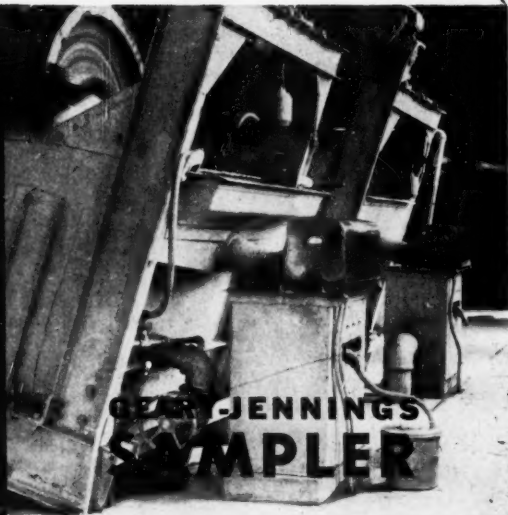
Phone or write
FOR PRICE SCHEDULES

Metallurgy

looks to **GALIGHER** **ENGINEERING**



AGITAIR
FLOTATION MACHINE



GEARY-JENNINGS
SAMPLER

Two World Famed Trade Names

AGITAIR Flotation Machine and Geary-Jennings SAMPLER are accepted and acclaimed for efficiency in metallurgical centers throughout the world. Descriptive literature on either or both will be mailed on your request.

FROM ORE TESTING TO ORE RECOVERY
Before mill design or construction can be intelligently planned, ore testing is essential to determine optimum flowsheet for the treatment of the ore in question. Galigher service is keyed to this basic requirement of sound operation . . . well equipped with testing plant, laboratory equipment and technical skill — not to mention the many years of pioneering experience that has kept the name Galigher in the forefront of metallurgical operations throughout the world.

"Leaders in Experience and Service"

THE **GALIGHER** COMPANY

CONSULTATION • ORE TESTING • PLANT DESIGN • CONSTRUCTION



AGENTS IN ALL PRINCIPAL FOREIGN MINING DISTRICTS

HOME OFFICE

645 WEST 4TH SOUTH
SALT LAKE CITY, UTAH
U. S. A.

EASTERN OFFICE

621 DEQUEEN AVENUE
JERSEY CITY,
NEW JERSEY

precipitates—ROCKY MOUNTAIN

Oil Shale Mine at Rifle To Demonstrate Methods

The U. S. Bureau of Mines announces a test production run in the Experimental Oil-Shale Mine, near Rifle, Colorado, on September 20 and 21, 1949.

A highly mechanized operation, the oil-shale mine is developed on two levels. The top level, or advance heading, will be worked from September 7 to 20, and the lower, or bench level, from September 21 to October 4.

The purpose of the test run is to demonstrate methods for mining oil shale on a commercial scale and to establish the direct mining costs. As conducted, the operation is identical to one unit of a large-scale mine. An unusually low mining cost will be required for a successful oil-shale enterprise, and the work at Rifle has indicated that this low cost can be attained. In a test run completed on the top level in May, the direct cost of mining was 33 cents per ton. More than 100 tons of oil shale was produced per man-shift.

Colorado School Offers 75th Anniversary Data

The observance of the Seventy-fifth Anniversary of the Colorado School of Mines will be held at Golden, Colorado, on September 29 and 30 and October 1. As Golden is a town of about 6,000 population, hotel accommodations in the town are few and most of those who plan to attend the observance will have to obtain lodgings in Denver, which is thirteen miles away. The school suggests you write for hotel reservations in advance or that you write the Seventy-fifth Anniversary Committee to send you its folder listing hotels and motor courts of Denver including a reservation card which may be returned to the committee for it to make the reservation for you.

Bus transportation will be provided each day to Golden and return from convenient points in Denver and the committee would like to know in advance if you will use this service.

On September 29 at 9:30 a. m. a trip will be made to the school's Experimental Mine at Idaho Springs at a charge of \$2.75 round trip fare including lunch. At 7 p. m. that night the

Anniversary Dinner will be held at the Cosmopolitan Hotel at a charge of \$6 per person. On September 30 a western chuck-wagon dinner will be given on the campus for \$2.50 per person. Reservations must be made in advance for these three events.

Lunches will be served for 75 cents at several fraternity houses and the school cafeteria each of these three days. Reservations must be made for these lunches also.

A folder listing the lectures and all the events to be given is available from the committee for anyone wishing to write.

COLORADO

According to R. E. Simpson, one of the partners owning *Slate River Mining Company*, the 2,000' aerial tramway at the Eureka mine project should be completed and in operation by the middle of September. The mine is 13,200' above sea level on Treasury mountain, Gunnison, Colorado. By bulldozing a road through eight-foot snow drifts, equipment has been transported into the site. Once the mine is in operation, a crew of 10 to 12 men will be working it, and 50 tons of ore will be taken out per day. Copper-silver is to be sent to the Garfield smelter, Utah, lead-silver-zinc to Midvale, Utah, and heavy lead-silver to Leadville, Colorado, for processing. Although Simpson has had the property since 1947, no work was done until last year when camp was first established at the mine. Burro trains brought ore out of the mine in the 1880's, when it was first opened. Ore is high grade in replacement bodies.

At Aspen, Colorado, the *Anaconda Copper Mining Company* is reported to be prospecting several properties with the thought in mind of installing a mill if exploration indicates that lead and zinc can be produced profitably. About 25 men are employed in the work.

Midnight Mining Company continues to produce 30 tons of ore per day containing silver-lead-zinc and, according to operators Fred and Frank Willoughby, is the only mine in the district which has operated continuously for 25 years. The mine is above Castle Creek, south of Aspen.

The recently organized *Beryl Ore Company*, Loveland, Colorado, is buying large quantities of beryl crystal for testing and treatment and is



WILL IT BE COMPLETED THIS TIME?

The Senate Appropriations Committee has recommended that the Leadville mine drainage tunnel at Leadville, Colorado, be completed and has voted to include \$250,000 in contract authority and the same amount in cash for continued construction of the bore. Purpose of the tunnel is to unwater shafts in the highly mineralized district of Leadville, thus making available for mining an estimated 3,000,000 tons of lead-zinc ore. The Bureau of Mines states that by tunneling 2,600' to the Hayden shaft, drainage could start.

trying to develop a market for beryllium in the area. Demand for beryllium has been centered mainly in New Jersey until now and freight rates have been too high to warrant shipments. Considerable deposits of the ore can be found in the Idaho Springs and Chicago Springs area.

Continued activity is reported in Colorado's Lake City area where completion of road building has opened the White Cross district and *Sunflower* mine. *Independence* mine and *Yellow Medicine* mines are being worked. Mining men in these districts are optimistic over results of development despite present low metal prices.

Part of the F. A. Sitton uranium tracts near Dove Creek, southwestern Colorado, has been bought by Texas oilman, R. O. Dulaney, and the *Sitton-Dulaney, Inc.*, company has been set up for developing the 2,000 acres. Sitton is managing the operations, which cover, more specifically, the O'Neil group of claims. These claims are being developed to a capacity of 50 tons of milling ore per day. Campsites have been built to accommodate from 20 to 25 miners.

A gold strike is reported at the *Front Range Mines, Inc.*, *Strong* mine at Victor, Colorado. John Deersken, president, said the ore was discovered at 2,100'. The first four samples taken showed very good values, and diamond drilling is going on to find the exact extent of the vein. Operations at the mine are to be greatly expanded on the strength of the find. The *Strong* mine is on Battle Mountain near the famous old Ajax, *Independence* and *Portland* mines.

The lease of the *South Burns* shaft of the *Acacia Mining Company* to *Trand Mining and Leasing Company*, *Cripple Creek*, Colorado, has been reported. *Trand* has already repaired surface buildings and started underground work. Roy Andrews is president of the company. He says there are known values on the lower levels of *South Burns* and plans to sink the shaft 200' and drift some to come up under the ore. Further development in other sections of the mine is also planned.

Blair Burwell, head of *Mineral Engineering Company*, *Grand Junction*, Colorado, has reported the discovery of vanadium and uranium bearing ore near *Rico*, Colorado. Two carnotite miners, John and Louis Dunning, found the deposit in *Barlow Gulch* on the other side of the mountain from the well-known *Hermosa Creek* mines. *Minerals Engineering* has a contract to develop the find and is installing equipment now.

Empire Zinc Division of the New Jersey Zinc Company has increased the milling capacity of its *Eagle* mine at *Gilman*, Colorado, from 750 tons to 1,250 tons per day by improvements and additions of equipment. Substantial quantities of lead, copper,

silver and zinc are produced at the mine. A new fireproof head frame and surface buildings were put up a short time ago. An underground grinding plant is planned to prepare slimes for filling fire areas. Shaft timbers have been replaced by steel on each level, and the shaft collar has been concreted.

With 70 men employed, considerable progress is reported on the new mill between *Cripple Creek* and *Victor*, Colorado, under construction by the *Golden Cycle Corporation*. Back walls for the first and second terraces are completed and forms for the fine-ore bin have been built. Excavation and form building is under way for the back wall of the third terrace. A new pipe line to supply the mill with water has been laid part way. When the entire project is finished and in operation, gold, formerly shipped 75 miles to the mill at *Colorado Springs*, can be milled on the site and a considerable tonnage of ore too low grade to ship profitably can now be milled. A new drainage tunnel at a depth of 3,000' has opened more ore. Installation of new equipment at the *Cresson* mine also adds to the producing efficiency of the entire property. The *Cripple Creek* gold district is expected to be affected very favorably by these expanding developments.



Vanadium Corporation of America's pilot plant, which started its first ore crushing in July, is to be used to prove metallurgical control in pilot plant production on ores containing uranium and copper, according to D. W. Viles, vice president. Building of the plant has stimulated prospecting for these ores in the *White Canyon* district near *Hite*, Utah.

Drifting work is underway at *Mountain Mines Company's* property at *Big Cottonwood* district, Utah, under contract to *Virgil Frantz* of *Heber*. Plans are to drift westerly 500' along the *Silver King* vein and vertically under the west ridge of *Mineral Fork*. This area has always been productive of gold, silver and other metals. Recent developments at the mine included a drainage and development tunnel, which intersected the *Silver King* vein about 2,000' from the surface, and a 1,210' westerly drift along this vein toward the intersection of the *Silver King* and west contact veins. Holes most recently drilled show good values in quartz and heavy blue sulphides.

Bullion Monarch Mining Company is developing what appears to be a large area of disseminated autunite in the *Marysville*, Utah, area. The company thinks that present indications may lead to open cut production of uranium ore on a large scale.

CARD CARS



For "Lowest Cost per Ton Mile Haul"

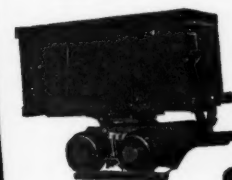


In the final showdown, LOWEST COST PER TON MILE HAUL, is the stake you are playing for.

Why not standardize on CARD CARS! From Cobalt to Sonora, practical mining men say "Every Card Car is an ACE in the hole."



DESIGNED AND BUILT TO BEST MEET SPECIFIC CONDITIONS IN EACH MINE.



Ask for Catalog 40

C.S. Card Iron Works Co.

Denver, Colorado

precipitates — NORTHWEST

Dant and Russell Pop Oregon Perlite

A large operation is seen in Dant & Russell's \$1,000,000 operations at Frieda, Wasco County, Oregon. The company has recently installed special machinery at its plant to explode the mineral (a volcanic glass) into commercially used forms—plaster aggregate. More equipment is being moved in to manufacture acoustic tile, and machinery from the now-closed St. Helens operations has been transferred to the larger Frieda works.

The volcanic glass is dug from a steep hill 500' from the plant, trucked to the plant and processed for shipment to consumers. The first shipment of 18 tons was made in July.

Two shifts are now employed and a third will be added as soon as the Wasco Electric Cooperative power line is completed to the property, which must depend at present on limited diesel and gasoline power.

Washington Gold Mine Sends Rock to Mill

In 1928, J. J. Keegan became interested in a rather remarkable gold and silver property three miles from Wenatchee, Washington, on the west side of the Columbia River in the Squill-chuck Canyon. The mine had not been worked since about 1910 at which time ore was selected by hand and delivered to a small stamp mill by wheelbarrow. Keegan formed the Keegan Mining and Development Company and has spent most of his time developing the mine since.

The gold bearing formation is a dike several hundred feet wide cutting across the Canyon for a distance of two miles. Outlying portions in one spot total over 1,000' wide. At the mining point the dike stands above the surrounding country 300 to 1,900'. The dike is an acid rock, highly silicious, and so weathered that exact identification has been difficult. On its flanks are sandstones.

Most of the quartz is rusty, and so frequent are the veins and veinlets that the general color of the dike rock over a large area is reddish brown. Most of the veins and veinlets contain gold in profitable amounts. The combination of the dike rock and the innumerable reticulated quartz veinlets constitutes the ore of the property.

Several quartz veins, containing ore of commercial value, are large enough to support a profitable mine in themselves. However, the plan is to work

the dike as a whole, or at least the greater portion.

Conditions are favorable for cheap mining, as practically all there is to be done is shoot the rock down and run it through the mill by gravity. Little of the usual development work has been necessary, the operation being of a purely quarrying nature. However, several tunnels and drifts have been driven to determine the underground extent of the deposits.

There are several paved roads into the mine and sufficient electric power for all operations. Present plans include stoping in three different places in the tunnels and drifting along two quartz veins. The ore taken out will be trammed to the mill.

Keegan believes the mine is one of the most promising in the western states and should be especially profitable if gold prices rise.

IDAHO

Surveying and development are in process at Palisade Mining and Milling Company's property near Kellogg, Idaho, according to Theodore Schmidt, president. The mine is at an elevation of 6,000' at the head of the West Fork of Pine Creek and because of its extreme elevation can only be worked during the summer when it is not snowbound. A few years ago during road construction, two six-foot veins of oxidized iron and quartz were uncovered and recently a contract was let to drive a crosscut under this showing. Tunneling is progressing from the face of the present 800' main working tunnel and should cut the veins within 100'.

Newly incorporated with a capital of \$150,000 was the *Chandalar Mining and Development Company*, Coeur d'Alene, Idaho. W. F. McNaughton, S. C. and H. S. Sanderson are the organizers of the company.

An extensive survey led by Professor W. W. Staley is under way by the University of Idaho to help determine the extent of manganese deposits in the state. As most United States manganese is imported, any new high grade deposits found will have considerable importance. The Dean of Mines at the University, A. W. Fahrenwald, has asked that anyone knowing of possible ore deposits in the state write him.

Contractors developing *Western*

Silver-Lead Corp.'s property at Wallace, Idaho, have cut through a fault and found a promising vein. Drifting along this vein is now under way and has reached 65' so far.

Silver Star-Queens Mines, Inc., Bellevue, Idaho, is sinking a shaft on its property and is down over 135'. This shaft will connect with the deeper workings of the *Minnie Moore* ground, a leased property which the company is developing. When the connection is made exploration of the Angel vein structure can begin by drifting about 1000' from the shaft on the *Minnie Moore* ground, which will provide a second escapeway at the same time.

Northeast of Osburn, in Idaho's Coeur d'Alenes, exploration on the property of *Inspiration Lead Company* and *Silverore Mines, Inc.*, is proving encouraging. According to C. O. Dunlop, president of Silver Dollar Mining Company, "diamond drilling in the face is showing some interesting core. Drifting north and south on a mineralized vein is very satisfactory and with sufficient width this vein could become commercial. The drift to the north of the main tunnel is for *Inspiration Lead* and to the south for *Silverore*."

Plans have been formulated to drive a tunnel several hundred feet below the present workings at *Castle Mining Company's* properties in the Marysville district of Idaho. The company is also to build a new mill to treat its gold-silver ore.

Crosscutting to explore the virgin ground south of the Osburn and Alhambra faults, *Caledonia Silver-Lead Mining Company*, Kellogg, Idaho, reports it has cut the fault and found several stringers of quartz and mineralized ore. The crosscut leads from the 500' level of the North Bunker Hill incline shaft. *Bunker Hill* has found rich ore along its section of this fault zone, an encouraging factor. Five men are working the property.

MONTANA

Developing its mine through the *Bald Butte* shaft, *Carbonate Mines*, Marysville, Montana, has driven a drift for nearly 1,000' through virgin ground and has intersected two well-mineralized cross veins in its course toward what engineers believe will be an orebody of commercial value.

470 PAGES PROFUSELY ILLUSTRATED

BLASTERS' HANDBOOK

ONLY
\$1.50
POST PAID

DU PONT

COAL
MINING

ORE
MINING

QUARRYING

STRIPPING

LOADING

PRIMING

FIRING

BLASTING
DATA

IT'S NEW!

Now Ready

12th edition

BLASTERS' HANDBOOK

Only book of its kind
... bigger, better, more
helpful than ever before.

GET THIS READY REFERENCE . . .

Here's the first edition of the Blasters' Handbook in eight years! 470 pages of up-to-the-minute information every blaster will want. Take a minute—now—to fill in the coupon . . . while you're thinking about it. The book's a complete guide to better blasting. Outlines approved methods. Completely revised . . . profusely illustrated . . . the new, 12th Edition of the Du Pont Blasters' Handbook is a handy, ready reference that describes preferred practices in blasting jobs of all kinds.

PACKED WITH INFORMATION . . .

This new handbook supersedes all earlier editions. New methods recommended are based upon new, practical field experience and the most efficient use of new, improved products. Chapters cover today's best methods for blasting operations. New charts . . . new tables . . . and an officially approved check list of safety measures . . . all provide new facts every blaster should have.

HELPS YOU DO A BETTER JOB . . .

Blasters everywhere . . . in every type of work . . . will find this pocket manual a big help. It answers their questions . . . helps solve blasting problems . . . aids in doing a better, more economical . . . more efficient job. Order *your* copy of this new, bigger and better edition of the Blasters' Handbook now. Mail the handy coupon.

Check this partial list of chapter headings . . .

Dynamite
Blasting Agents
Ventilation Aids
Primers and Priming
Firing Blasts
Cuts and Rounds
Shafts and Tunnels

Coal Mines
Ore Mines
Quarries and Open Pits
Strippings
Submarine Blasting
Precautions After Blasting
Information Tables

DU PONT

WILMINGTON, DEL.

BETTER THINGS FOR BETTER LIVING

... THROUGH CHEMISTRY

LIMITED EDITION . . . ORDER NOW

E. I. du Pont de Nemours & Co. (Inc.)
Explosives Department, H-6
2507 Nemours Building
Wilmington 98, Delaware

Gentlemen: Yes, indeed . . . I want a copy of the new, 12th Edition of the Blasters' Handbook. I enclose check () . . . money order () for (\$) for which please send postpaid _____ copies at \$1.50 each.

Name _____

Company _____

Title _____

Street Address _____

City _____ Zone _____ State _____

THE COLORFUL STORY OF T5X

...THE FAMOUS PURPLE* OIL!



1. Back in the 1930's a new and improved Diesel engine went on the market. It was an excellent engine, but on regular oils its valves stuck and it loaded up with sludge. Because of this problem, Union Oil scientists went to work and developed an oil with a cleansing agent. They called it D5X. This new oil kept the new Diesel remarkably clean!



2. D5X was the forerunner of our present-day compounded oils and it did much to make possible the development of the dependable, economical, modern Diesel engine. By 1940 more new compounds had been added to the oil and its name was changed to T5X. With the new compounds and a 100% pure, paraffin base, T5X was found to be ideal not only for Diesels but for gasoline and gas powered engines as well!



3. When the war came, the Army set up Specification 2-104-b for heavy-duty lubricating oils—the most demanding set of requirements yet devised for a lubricant. T5X easily exceeded this specification. Throughout the war, T5X did a truly outstanding job in trucks, jeeps, landing craft—in practically all types of military equipment powered by internal combustion engines.



4. Since the war T5X has proved itself under the most severe tests and operating conditions. Its exclusive detergent compound retards sludge to a remarkable degree. A special inhibitor retards oxidation and gives high heat stability. A neutralizing agent combats acidity. Still other additives guard against rust and corrosion. Now thoroughly tried and proved, T5X is available to you as the finest heavy-duty motor oil money can buy!

For full information on T5X phone your local Union Oil Representative or write Sales Dept., Union Oil Company, Los Angeles 14, California.

*T5X gets its distinctive color from an exclusive ingredient that helps give the oil its remarkable stability.



UNION OIL COMPANY **OF CALIFORNIA**
MINING WORLD

The drift has been running parallel to a known vein of lead-silver ore. Progress has been at a rate of about 200' per month. Carbonate is financed by *Silver Dollar Mining Company*, Wallace, Idaho.

At Bannack, Beaverhead County, Montana, the *Olamont Mining Company* took over the *Ermont* mine and has re-opened it. The mill is operating and new machinery has been installed. Gold is recovered and shipped in brick form. The company has considerably increased its crew since operations began early this year.

Increased production is planned by *Mitchell Mining Company* at its gold-silver-lead property in Current Gulch, south of Virginia City, Montana. In recent months several encouraging new orebodies have been located which have added to the company decision to expand. Roy Hammond of Hammond and Everly, consulting engineers, Butte, Montana, announced the future plans for the company at a stockholders meeting held recently at Mount Vernon, Washington.

Take-over of the old *Cumberland* mine near White Sulphur Springs, Meagher County, Montana, was announced by Glenn L. Fish, president of *Silverton Mines, Inc.*, an Idaho company. The *Cumberland* has not produced since 1893 and considerable rehabilitation will be done by *Silverton*. A 360' shaft opens the property and is now being unwatered.



Cornucopia Gold Mines, Baker County, Oregon, is offering 191,500 shares of stock at a price of 27½ cents per share to its stockholders through rights. The funds secured will be used for maintenance of the property until such time as conditions are favorable to gold mining. The present company has produced net (less smelter, freight and hauling charges) \$3,426,733 and previous operations have produced an estimated \$5,600,000 with gold at \$20.67 per ounce.

The *Standard Mine*, nine miles north of Prairie City, Grant County, Oregon, will be reopened after many years of idleness by Bert Hayes of John Day. The mine is an old copper-cobalt producer in the Quartzburg district and 40 years ago a mill was built and a good deal of underground work was done. Hayes is cleaning out the lower tunnel for inspection now and hopes to start mining shortly.

Shipments of over 100 tons of scheelite ore have been sent out from the *Bratcher Mine*, three miles southwest of Ashland, Oregon, to the *Tulare County Tungsten Mines* plant in

California for milling. The ore deposit was only recently discovered by L. A. Bratcher, and initial workings have exposed an ore zone from four to 12' wide. Length and depth are as yet unknown. Five men work the property.



Permanente Metals Corporation has bought three large aluminum production plants from the Government in a sale involving \$36,000,000. Two of the plants—the Mead aluminum reduction plant and the Trentwood rolling mill—are near Spokane, Washington. The third is an alumina plant at Baton Rouge, Louisiana. *Permanente* has been operating the plants since 1946 through a lease with the War Assets Administration and will pay part of the purchase price by contributing aluminum to Government stockpiles. The Mead has an annual capacity of 216 million lbs., the Trentwood 288 million lbs. and the Louisiana plant 500,000 tons of alumina from bauxite. *Permanente* will be able to process aluminum from beginning to end in its own organization through the acquisition of these plants.

Northwest Magnesite Company, Chewelah, Washington, will install a new electrical precipitator to remove dust in its big industrial plant in Stevens County. About 20 years ago

the company had a *Cottrell* precipitator installed, but this was burned out during the war when no replacements were available. The plant processes ore from four quarries owned by the company in the *Huckleberry* foothills.

Several Seattle men, including Harry P. Kramer, president of *Slate Creek Mining Company*, have gained control of the *Azurite Gold Company*, long owned by the Ballard family. The mine, 40 miles from Mazama, Whatcom County, Washington, has been an intermittent producer of high grade ore for over 20 years, and once—from 1934 to 1938—*American Smelting and Refining Company* had a lease on it. *Slate Creek*, which bought the old *Eureka* and *Bonita* mines about a year ago, will reopen the *Azurite* and already has started moving in a crew. Evidently the transfer of the property has stimulated interest in the area again and several large companies are reportedly scouting at present.

Earl Cannon, prospector from Chewelah, Washington, has discovered a low grade uranium deposit on the slope of a nearby mountain. Grant M. Valentine, geologist for the state division of mines and geology, identified the ore samples Cannon sent to him as columbite and the yellow powder sticking to it as uranium oxide but of too low grade for commercial uses. Cannon is continuing to work his claim and reports the occasional finding of better samples which may in time lead to a higher grade deposit.



IDAHO MILL EXTRACTS TAILING VALUES

The new *Apache Mines Company* mill at Hailey, Idaho, is running very efficiently on three shifts, or a 24-hour operation, as planned, according to Jack Lanning, mill foreman. H. C. Murphy, superintendent for the company, says the recovery of silver and lead in the tailings the mill is treating runs much higher than expected. Some of the material in the dumps has lain on the property fifty years and until the advent of modern milling methods was considered worthless. Work is progressing on opening of all main tunnels, including the *Whale*, *Durango*, *Chicago*, *Mayflower* and *Jay Gould*. Also in the near future work will be done on the *Red Elephant* group preparatory to further exploration.

precipitates—CENTRAL and EASTERN

Exploration at Copper Range Still Progressing

In spite of present copper prices and the low grade nature of the ore in Copper Range Company's East Vein of the Champion mine, stoping at the 9th level of the No. 1 shaft and general development of the mine is continuing. Further exploration of the extent of the orebody on the White Pine Tract is proceeding through diamond drilling.

Around 200 million tons of reserves exist on the property. Of this, the richer ore is found in some 107 million tons of shale averaging about 23 lbs. of copper per ton.

The company plans considerable mechanization of operations on this property, and mining, milling and smelting processes are being studied with care in order to achieve substantial recoveries by evolving a highly efficient operation for this Michigan property.

U. S. Steel Will Build Five Sintering Plants

United States Steel Corporation, through its subsidiaries, will construct five new sintering plants to process powdery iron ore to usable

size and to recover iron principally from blast furnace flue dust which contains approximately 50 percent iron.

These facilities will add 1,800,000 net tons a year to the high grade iron ore available for the company's blast furnaces, without requiring an equivalent increase in iron mining.

Location of the sintering plants will be at the Carnegie-Illinois Steel Corporation's Gary, Indiana, and South Chicago, Illinois, properties; at the Edgar Thomson and Carrie Furnace plants at Pittsburgh, Pennsylvania, and at the National Tube Company's National Works at McKeesport, Pennsylvania.

As the presence of fines in iron ore has meant a metallic loss of approximately 3,000,000 tons in ten years, the new plants will recover a good part of this loss and lessen the demand for mined ore.



A custom mill is being erected on the old Connor-Brester property at

Galena, Kansas, by Charley Anderson and Associates of Baxter Springs. The mill will be in operation in the fall. A capacity of 100 tons is planned at first to be increased to 150 tons as soon as mining activities in the district increase to the point of needing the additional tonnage.

Diamond drilling is again being carried on at the White Pine tract of the Copper Range Company, Ontonagon County, Michigan. The company expects to continue plans for developing the property in spite of the lower price for copper.

About five and a half miles from Sainte Genevieve, Missouri, two varieties of radioactive rock have been discovered in a quarry by Charles Bussen, who gave samples to Dr. Edward L. Clark, state geologist. Dr. Clark found that uranium occurred both in gray limestone and soft black shale from the quarry. He says the size of the deposit is unknown and that specimens so far do not show ore as high grade as that used by Atomic Energy Commission laboratories. He intends investigating other limestone quarries in southwestern Missouri's lead region and checking many thousand of samples of drill cuttings from eastern Missouri wells in the geological survey laboratories to determine the extent of uranium in the state.

A recent survey report released by the Bureau of Mines estimates that zinc-lead ore reserves in the Tri-State district of Missouri, Kansas and Oklahoma amount to 66,100,000 tons of minable ore. The survey covered some 38,900 acres and took two years to complete. It pointed out that two wars and a depression caused such selective mining of high grade ore that much lower grade ore was lost or reduced to even lower value. Out of over 40 million tons in Kansas and Missouri about 26 million are under water, the control of which is a major problem during mining operations.



In New York the Sterling Chemical and Ore Corporation has been formed and has taken over all the assets and liabilities of The Ore and Chemical Corporation of New York and Sterling Chemicals, Inc., of Newark, New Jersey. The new company is actually a merger of the two old companies and will continue to carry



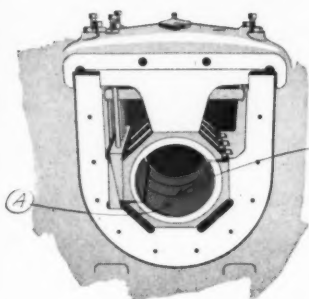
THORIUM FOUND IN MISSISSIPPI

Gold and traces of thorium appear in surface formation on Tom Davis' farm at Columbia, Mississippi. On investigating the discovery, Dr. William Morse of the University of Mississippi found that a shaft to a depth of 235' would be necessary to indicate the real value of the deposits. The gold is in a blue clay matrix and the thorium in gravel. Davis has been digging in the deposit for two years and has found numerous semi-precious and precious stones besides.

STANDARD ENGINEER'S CASE FILE



Case 1145—Cutting Lube Cost in General Equipment



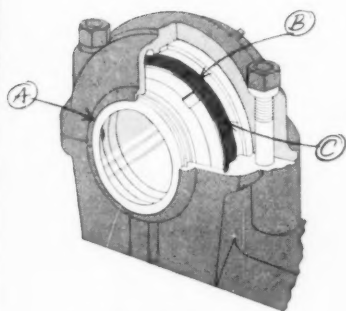
AIR COMPRESSOR MAIN BEARING

Calol Multi-Service Oils in air compressors decreased lubricant consumption as much as 20%. Highly efficient in many machines, including Diesel engines, pumps, enclosed reduction gears and their integral bearings. Come in six grades: 45X, 50X, 55X, 65X, 75X, 85X. Approximately SAE 10 to SAE 50.

- A. Contain oxidation-resistant compounds ... prevent formation of varnish and lacquer on bearing surfaces, engine cylinders, pistons, etc.
- B. Special compound assures lubrication at high temperatures — has inherent tendency to "run toward" hot surfaces ... spreads uniformly and rapidly.

Other additives in Calol Multi-Service Oils help remove lacquer and varnish from machine parts and keep them dispersed, and prevent excessive foaming of oil. May be used in all types of filing systems.

Case 1165—Keeping Grease in Bearings in Hot Conditions



HEAVY-DUTY ROLLER BEARING

Specialized Calol S.A. Grease did not leak from a heavily loaded industrial bearing on a factory machine when surrounding temperatures climbed to 250° F. Its heat resistance was also proved in a series of tests on the Navy Ball Bearing Machine, operated at 10,000 rpm with extremely high bearing temperatures. Adaptable to many services, but especially recommended for anti-friction bearings where radiated temperatures are high. Comes in three grades: Nos. 00, 0 and 1.

- A. Very high melting point minimizes seepage through housings and seals.
- B. Feeds evenly to all bearing surfaces.
- C. Remains soft in cold temperatures — assures good pumpability and thorough lubrication.

To give Calol S.A. Grease unusual heat-resistant qualities, it is made from selected heat-resistant oils and a special sodium-aluminum soap base.

Trademark Reg. U. S. Pat. Office

STANDARD TECHNICAL SERVICE will make your maintenance job easier. If you have a lubrication or fuel problem, your Standard Fuel and Lubricant Engineer or Representative will gladly give you expert help; or write Standard of California, 225 Bush St., San Francisco 20, California.



FOR EVERY NEED A **STANDARD OF CALIFORNIA** JOB-PROVED PRODUCT

out the work of both. Offices will be at 80 Broad Street. President of the organization is R. Schreiber.

New England metal men estimate that their region can consume a million tons of steel a year and that a steel plant is definitely a feasible plan, if iron ore can be made readily available. That problem may be solved by efforts of the *Hollinger North Shore Exploration Company, Ltd.*, in Quebec, and the *Labrador Mining and Exploration Company, Ltd.*, in Labrador, which have been working together to develop huge Labrador iron ore deposits. In 5-10 years these companies will start shipping iron ore which could go to New England at a cost considerably less than to ship iron ore from Minnesota's Mesabi range. As New England's metal industries are on the increase, the easier availability of the Labrador ore may someday have a boom effect.



An inclined underground belt conveyor system is being installed in the *Cambria-Jackson* iron mine, Negaunee, Michigan, by the *Cleveland-Cliffs Iron Company*. The conveyor belt will have a 15 degree incline, be 594' long and will have a vertical lift

of 154'. The design is such that the belt will lift iron ore from the new eighth level to pockets above the seventh for discharge.

Pickands, Mather and Company has closed its *Zimmerman* mine at Gaastra, Michigan, and pulled the mine pumps. A deep well pump will hold the water at about the sixth level. The older *Zimmerman* employees have been transferred to the *Buck and James* mines. Arthur Martini, mining captain, will be given a supervisory position at some other mine in the district.

Republic Steel Corporation's Tobin mine at Crystal Falls, Michigan, has gone on a forty hour per week schedule. The only Michigan iron mine remaining on a six day work week is the *Book* mine of the *North Range Mining Company*.

Inland Steel Company's Armour No. 2 mine on the Cuyuna range, Minnesota, converted into an open pit operation, began loading ore on June 20. *Armour No. 1* is an underground, shaft mine.

The *Mahoning* mine of *Pickands, Mather & Company* at Hibbing, Minnesota, has completed the erection of a large mine shop and warehouse for haulage truck repairs and also a truck storage garage.

The lease to the state-owned *Misabe Mountain* mine will again change hands and, probably, at the

highest royalty ever paid by any iron mining company. The *Pacific Isle Mining Company*, Hibbing, Minnesota, was awarded two permits to prospect for ore at the mine with ninety days in which to sign a lease. The company's bid was \$2.68 a ton for ore mined and shipped, *Charleson Mining Company*, Hibbing, which operated the property from 1942 to 1948 paid \$1.41, shipped 5,500,000 tons or ore during those years and relinquished its lease this spring. An estimated 1,700,000 tons of ore still remain in the mine. If *Pacific Isle* exercises its right to a lease, the last ore in the pit will be mined at a royalty more than ten times than that paid for the first 90 per cent of the mine's total tonnage of 73.7 million tons mined since 1892.

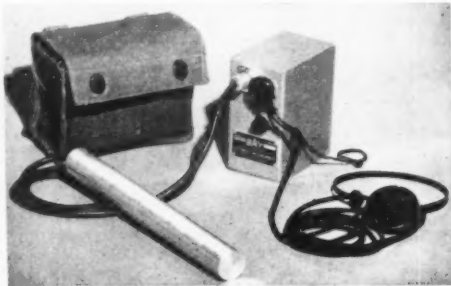
Inter-State Iron Company, Virginia, Minnesota, is dewatering the *Greenway* pit, which lies three miles northeast of Grand Rapids, on the far westerly edge of the Mesabi iron range.

A new level is being driven at the *Greenwood* iron mine by *Inland Steel Company*, Ishpeming, Michigan. The *Greenwood* is on the *Marquette* iron range and has been producing iron ore for the past 17 years.

One million tons of direct shipping ore and concentrates are expected to be produced at the *Inter-State Iron Company's Longyear* mine at Hibbing, Minnesota, this season.

GEIGER COUNTER

FOR LOCATING RADIOACTIVE MINERALS



NOW 54.50!

- Lowest Price
- Lightest Weight
- Most Economical to Operate
- Noise-Free, Easily Heard
- Extremely Sensitive
- Flashlight Battery Operated
- Loudest Audible Signal
- Simple, Reliable Circuit

Write for Complete Brochure

UNIVERSITY APPARATUS CO.

2229 MCGEE AVENUE

BERKELEY, CALIF.

International Smelting and Refining Co.



Buyers of

**Gold, Silver, Copper, Lead,
Zinc Ores and Concentrates**

ORE PURCHASING DEPARTMENTS

MIAMI, ARIZONA

818 Kearns Bldg.

SALT LAKE CITY, UTAH

**Copper Smelter
MIAMI, ARIZONA**

**Lead and Copper Smelter
TOOELE, UTAH**

AMERICAN SMELTING AND REFINING COMPANY

Has Always Offered an Unfailing Market for

GOLD . . . SILVER . . . COPPER . . . LEAD . . . ZINC

Ores . . . Concentrates . . . Bullion . . . Precipitates . . . Furnace Products

For Schedules, Freight Rates, etc.

Write to Your Nearest Office

405 Montgomery Street
San Francisco 4, Calif.

P. O. Box 1111
El Paso, Texas

700 Pacific Nat'l Life Bldg.
Salt Lake City 1, Utah

810 Valley Bank Building
Tucson, Arizona

Tacoma 1, Washington

East Helena, Montana

607 First National Bank Building, Denver 2, Colorado



AMERICAN SMELTING AND REFINING COMPANY

AMERICAN ZINC, LEAD AND SMELTING COMPANY

Buyers of Zinc Concentrates
Suitable for Smelting in Retort
and Electrolytic Smelting
Plants, also Buyers of High
Grade Lead Concentrates.

*Address Communications to Ore Buying
Department*

Paul Brown Building
ST. LOUIS, MISSOURI

927 Old National
Bank Building
DUMAS, TEXAS SPOKANE, WASHINGTON

Bunker Hill Smelter

Owned and Operated by

**Bunker Hill & Sullivan
Mining & Concentrating
Company**

Location: KELLOGG, IDAHO
(R. R. Station: Bradley, Idaho)

Purchasers of GOLD, SILVER and LEAD Ores.
Producers of "Bunker Hill" Brand of Refined Pig Lead,
Refined Gold, Refined Silver, Antimony Metal, Anti-
monial Lead, and Cadmium Metal.

For information regarding Ore Rates, Address

BUNKER HILL SMELTER

KELLOGG, IDAHO

CONSIGN ALL SHIPMENTS to BRADLEY, IDAHO

precipitates — SOUTHWEST

California Placer Mine Is Installing Dredge

Installation of a bucket-line dredge by Fairview Placers is continuing rapidly. The dredge, bought from Junction City Mining Company, has been moved to Stuart Fork, one mile below Minersville, Trinity County, California.

The company added pontoons to the hull of the barge to make it a total of 136' long and 62' wide. The digging ladder is being made eight feet longer and will be driven by "V" belts, and the ladder hoist will have a separate motor. Yuba jigs are replacing the old Hungarian riffle sluice boxes. Sufficient power for the operation will come from a new power line recently completed to the site. H. B. Murphy is manager.

Mojave Desert Is Scene Of Uranium Strike

Near Adelanto, California, Norris H. Williams of Downey, who manufactures the Wanzer geiger counter, and Ray Heatherington, who runs a minerals and gem shop near Buena Park, started prospecting, without each other's knowledge, at opposite ends of an area in the Mojave Desert and met in the middle with the discovery of a large uranium deposit.

Joining forces, they made a thorough study of the placer deposit and have so far stripped a section 105' long by 35' wide and 10 to 12' deep. Several 10' shafts have been sunk. The first two feet is useless top dirt but ore averaging 2 percent uranium

oxide lies from there to a depth of 10' or so.

Resident engineer at the property is N. G. Baxter who says that shipments to a magnetic separating plant in Los Angeles have been started. After processing at this plant, the ore averages 20 percent uranium oxide and thenceforth will probably be sent to Utah to an atomic energy plant.

The operators plan to install a plant along the Mojave River near Oro Grande and when that is built they will put the gravel over concentration tables and flotation cells before shipment to Los Angeles.



The *Westerner Gold Lead Mines*, near Prescott, Yavapai County, Arizona, and consisting of three groups of mining claims, has been leased to Harold Johnson, Joe Ward, and associates. The new operators are installing machinery and plan extensive prospecting of the dumps and old workings in the *Venezia*, *Starlight*, and *Premium* patented claims. The property is owned by Roma Tomlinson, 1275 Westchester Place, Los Angeles 6, California.

In northern Arizona, near Tuba City, on Indian reservation land, another uranium strike is reported. Walter Albert, reservation policeman, staked a claim on 20 acres of land which has many petrified logs, sand

and rock ledges visibly showing yellow carnotite. Albert and his wife rented a Geiger counter and tested a bucket of sand brought in from the site, getting such a violent reaction from the test that they hastily gathered many samples of rock, wood and sand and sent them to the Department of Minerals Resources in Phoenix for evaluation. That the strike is a rich one is now fairly well determined.

Producing mining properties of Arizona have been given an assessed valuation of \$197,576,046 for 1949 by the Arizona Tax Commission. The new figure is an increase of more than \$15,000,000 above the assessed valuation for 1948 of \$182,259,043. Seventeen producing mines were on the list. The only major decrease granted by the commission on mining properties was awarded the Copper Queen Branch, Phelps Dodge Corporation. The valuation of that property was cut from \$19,762,389 to \$16,179,133, on the basis of company testimony that it had laid off 700 men since the copper price decline and had halted all copper production at the Copper Queen. The valuation of Phelps Dodge's Morenci Branch was increased from \$66,471,735 to \$75,341,581.

Summit Copper Mines, Inc., Payson, Arizona, is expanding operations considerably through the purchase of several large pieces of equipment. A new 150 h.p. diesel electric generator, a 25-ton-per-hour crusher, a 100-ton Stephan concentrating table, and a Gibson 50-ton rod mill will be installed. Officials state that a large amount of ore has been blocked out



UNITED STATES POTASH COMPANY EXPANDS

An expansion program amounting to over \$1,000,000 is under way at the Loving, New Mexico, property of the United States Potash Company. A new office building, dissolving and crystallizing plants, power plant and steam boiler will be added. The photograph above shows the present buildings: a Marley cooling tower at far left, power plant (with stacks) and refinery buildings in the center and warehouses at the right. The company is a pioneer in potash development and production and is working deposits extending throughout a large part of Eddy County and into Chaves and Lea counties, New Mexico.

in the mine's three levels and has an estimated value of around \$900,000. The third level is still to be developed. Water supply at the site is adequate to operate the new mill and concentrating table.



Central Eureka Mining Company, Sutter Creek, California, is milling ore reportedly worth about \$17 per ton from the lower and newly developed levels of its mine. The present depth is 3,700' with a winze put down from there for the purpose of developing the lower levels. J. D. Swift, newly elected president, and Donald D. Smith, newly elected secretary and treasurer, are managing the property. Swift, who is living at the property, has replaced C. W. Plumb in the active management and has appointed Bud Syms as mine superintendent. Swift states that the mine has ore reserves in excess of \$3,000,000. Milling operations are exceeding 200 tons per day and profitable operations appear imminent.

Sunshine Gold Mining Company, Redding, California, has begun development of known orebodies on its property and is in the process of rehabilitating the mine and buildings

for increased operation. The mill capacity of 75 tons per day will be increased to handle 150 tons a day, according to a report received from James H. Wren, who is consulting engineer for the company. Elmer Brain is president.

At Weaverville, California, **Grimes Divide Company** has acquired an interest in the old **Dorleska** gold property, where some years ago quartz of good value was mined. The mine has a shaft 300' deep and a series of veins developed by 1500' of lateral workings. Recent examinations of the property by manager, Col. Seth Terry, show a considerable amount of milling grade ore and development should start shortly. New machinery will be installed and the workings deepened.

Discovery of rich gold quartz in the **Kate Hardy** mine, Forest, Sierra County, California, has been announced by Phillip and Hugh O'Donnell, who are operating this property with their uncle, John J. O'Donnell. The vein is a high grade ore body and quite wide, they say. Near the **Kate Hardy**, operators of the **Sixteen-to-One** mine at Alleghany announce the discovery of a new quartz vein.

Near the Honby Siding on the Southern Pacific Railroad northeast of Saugus, California, a new ore processing plant has been nearly completed by **Metrecore, Ltd.** The

plant is on the sloping hillside south of the railroad and well situated for gravity flow of all plant operations. Several Kern County properties will ship in silver ore here for processing. The plant will employ a hydro-metallurgical process of controlled leaching to produce crystallized mineral salts for agricultural uses.

Drilling is in process from a 500' tunnel at **Royal Drift Mining Company's** mine in the Magalia area near Oroville, California, attempting to locate the main channel. The development is on a virgin section of the property which totals 1,200 acres and runs two miles along the channel. Exploration last year turned up gravel worth a maximum of \$15 per cu. yd. There are numerous veins and deposits on the property which have yielded good-size nuggets. Extensive geophysical work for several weeks as an aid in locating the strike of various channels on the property has resulted in satisfactory surveys.

Exploration and development have temporarily ceased at **Gold Hill Dredging Company's** lead-gold mine in the Panamint Mountains bordering Death Valley, California, because of the intense heat. The mine, which is 5,700' high and cool enough, can be reached only by traversing the roasting valley with pack animals. Showings turned up so far are encouraging enough to resume operations on a larger scale this fall.

Use **FLEXIPIPE** . . . the quality ventilating tubing



FLEXIPIPE

Directs fresh air where you need it

The new improved Flexipipe is efficient, serviceable and economical. It's made in a variety of diameters and lengths and with various accessories to take care of your individual requirements. Write us for complete information and sample.

BEMIS BRO. BAG CO.

412 Poplar St., St. Louis 2, Mo.

FLEXIPIPE, Reg. U.S. Pat. Off.



FEEDOWEIGHT

A self-contained conveyor feeder scale that feeds, weighs, totalizes and registers. Use the Feedoweight for better control of ball mill grinding. It accurately controls FEED by WEIGHT, automatically. Made in sizes to meet all tonnage requirements.

MERRICK SCALE MFG. CO.

PASSAIC 172 Summer Street NEW JERSEY

MAGMA COPPER COMPANY

Buyers of

**COPPER, GOLD
AND SILVER ORES**

**MINES AND SMELTER AT
SUPERIOR, ARIZONA**



The Getchell mine in the Potasi district of Humboldt County, Nevada, continues to be one of the most producing gold mines in the state. The mine is developed by 7,000' of open pits and 5,000' of underground workings mainly at the 600 and 800' levels. On the surface the vein is 50 to 60' wide and drops away into the ground at a 45-degree angle. Underground development is continuing on the 600' level. A new and as yet incompletely investigated deposit has been found on a footwall split in the north workings. About 100' of ore exists here in a crosscut and averages around \$20 per ton. Not a great deal of

underground mining is done at the mine, as a large amount of ore still exists on the surface and is easily shovel-mined.

Diamond drilling is expected to begin shortly at the O'Leary mine southwest of Battle Mountain, Nevada. Stanley F. O'Leary owns the mine and generally leases it out. At one time the Buckingham Mines Corporation ran it and now Devonshire Development Company of Boston has a lease. A small crew is carrying out preliminary development to prepare for the drilling.

Barium mining is starting on the Argenta property belonging to the California-Nevada Barytes Company, Battle Mountain, Nevada. Other sections of the property have been producing large amounts of barite regularly.

A lead-silver vein about 40" wide has been found in the Marietta dis-

trict outside of Mina, Nevada. The ore was found by Louis DeRousse in a crosscut and shows a high lead content and good values in silver and gold.

Several manganese dioxide deposits are known to exist in the Sonoma range between Grass Valley and Buffalo Valley, Nevada, and Bill Parsons, well-known Pershing County miner, is working a rich find on a ridge in the Sonoma range. Assays from his workings show 82.5 percent manganese di-oxide content.

With the acquisition of three claims in the Doughboy group, a new perlite mining project is starting production about five miles north of Beatty, Nevada. In charge of Paul Mix, the project is backed by the Vadelite Corporation of Los Angeles. A large crusher, conveyors, ore bins and other equipment have been moved in and 150 tons daily will be processed. The perlite deposits in this area are considered better for certain insulation and building uses than the average type. The Beatty district is rich in the ore. South of Fallon, Nevada, William Stuart is also working perlite deposits and is using a portable crushing plant for his processing.

Around 200 tons of gold-silver and lead ore has been stockpiled by Pius Kaalen, mine owner and leaser, at his Gold Grater, Nevada, mine, where he will do the milling himself as soon as his small mill is repaired and able to operate.

Using special recovery equipment, 15,000 tons of tailings at Consolidated Mayflower Mines Company, Pioneer, Nevada, mine will be processed. A large amount of machinery has been set up already, and work should begin shortly.

A large deposit of gold-bearing gravel has been turned up by bulldozer and dragline operations at the Poorman placers on the middle fork of the Yuba River, northeast of Nevada City, Nevada, and owners are planning now to install a dry pit washing plant. Conditions for dragline dredging on a large scale appear very favorable.

Robert Rysh and Associates, Fallon, Nevada, have leased the old Columbus gold-silver mine near Winnemucca and will rehabilitate it. A compressor, machine tools and other machinery have been installed preparatory to reopening operations.

Near Battle Mountain, Nevada, in the Copper Canyon district, Greenan Placers' bucketline dredge now under construction will handle about 12,000 cu. yds. of gravel per day. The dredge is expected to be in operation in September. The property is run by Natomas Company of California on a lease from James Greenan. The dredge has 11 cu. ft. buckets which dump at a rate of 30 buckets per minute. Power is supplied for the dredge, the pumping plant, and other facilities.

Continued on Page 83

SuperDuty
DIAGONAL DECK
No. 6
CONCENTRATOR
TABLE

SuperDuty
CUTS COSTS . . . HANDLES MORE NEW FEED . . .
BETTER!

The sensational acceptance of the SuperDuty Diagonal Deck Concentrating Table is attributable in large part to its ability to produce high grade concentrates, leaner tailings and fewer middlings for recirculation at lower cost. By reducing the recirculating load, SuperDuty handles more tons of new feed per day.

For full information, request Bulletin 118A.

THE DEISTER CONCENTRATOR CO.
The Original Deister Co., Incorporated 1906
925 Glasgow Ave. Ft. Wayne, Ind., U. S. A.

PIPE VALVES • FITTINGS

New and Reconditioned

Pacific guaranteed reconditioned pipe is clean, straight, rethreaded, water pressure tested to 350 lbs., and dipped in hot, tasteless asphaltum for longer life.

Big Stocks • All Sizes

ECONOMY PRICED

Write for details and prices

Pacific Pipe Company

401 Folsom Street
San Francisco 5, Calif.

W. A. PLUMMER
MANUFACTURING COMPANY
Established 1900

Cloth Bags
Canvas Products
Special Industrial Fabrics
For All Phases of the Mining Industry
752 S. San Pedro St., Los Angeles 14, Cal.

PROSPECTORS, Engineers . .
For You, the

CHICO PAN

the pocket-size gold pan used
for sampling and panning.
Chrome-Nickel Stainless Steel
Sent Postpaid for \$2.00

Write: A. O. BARTELL
Mining Engineer

321-E Platt Bldg., Portland 5, Ore.



NEW METHODS—NEW EQUIPMENT

Manufacturers Personals

J. G. VAN NEST has been named director of purchases for the Mack Truck Company, with overall responsibility for all purchasing for all of the company's plants.

J. M. DAVIES, Associate Director of Research at Caterpillar Tractor Co., has been named Director of Research, succeeding C. G. A. Rosen, who is recovering from a recent illness.

B. T. EAGERTON has been promoted to the position of vice-president in charge of the Export Division of Nordberg Manufacturing Company.

JOHN J. SUMMERSBY'S election to position as vice-president in charge of Sales of the Worthington Pump and Machinery Corp. Thomas J. Kehane was made assistant vice-president and general sales manager.

ALFRED H. RANGER has been appointed Plant Engineer for the Mack Truck Company and will headquarter at the company's Plainfield, N. J., factory.

PAUL A. McDONALD succeeds J. W. Bloomquist as District Manager of the Euclid Road Machinery Company. Bloomquist became Assistant Sales Manager recently. McDonald will represent Euclid in North and South Dakota, Minnesota, upper Michigan and parts of Iowa and Wisconsin.

WILLIAM W. MOORE, a sales representative in Allis-Chalmers Detroit district office, has been named manager of the company's newly converted Toledo district office.

MATTHEW J. DELEHAUNTY has been named district sales manager for the Pittsburgh, Pa., branch of the mechanical goods division, United States Rubber Co.

HENRY W. DODGE has joined Mack Truck, Inc., as executive vice-president with special responsibility for sales and advertising.

J. F. FITZSIMMONS has been named manager of Allis-Chalmers commercial research department, succeeding resigning J. R. Reed, who intends to establish his own business.

MILTON GEORGE LUCKE recently joined Pioneer Rubber Mills as superintendent of its Hose Department. He will locate at Pittsburg, California, Pioneer factory.

SWECO Announces Factory-Built HMS Plants

Southwestern Engineering Company, one of the West Coast's oldest designers and constructors of custom-built ore processing plants, has announced the manufacture of factory-built Heavy-Media Separation plants. They are being pre-fabricated in the company's factory in Los Angeles from a SWECO design that has introduced new HMS features and simplified field erection.

The process employed in the new SWECO plants, which are being made in 100 t.p.h. and smaller sizes, is that licensed by the American Zinc, Lead and Smelting Company, for which American Cyanamid Company is the exclusive technical and sales agency.

The SWECO HMS plants are using field proven standard equipment. The separatory vessel selected for the plants is the Akins Separator, manufactured by the Colorado Iron Works.

The densifier is likewise an Akins product, built by the Colorado Iron Works. The plants are so designed that either Allis-Chalmers, Robins or Simplicity flat, single or double-deck screen can be used. The pumps are by Wilfley and magnetic separator is a Dings "HM" Crockett type.

While entering the pre-fabricated field, Robert P. Miller, president of Southwestern Engineering Company, has let it be known that his company is continuing the designing, engineering and construction of ore beneficiation plants to customers' specifications.

A complete description of the new SWECO HMS plants is contained in the company's Bulletin No. 902, which can be obtained by addressing request to MINING WORLD.

Wemco Assigned Steffensen Flotation Machine

H. N. How, president of Western Machinery Company, with main offices in San Francisco, has announced the completion of negotiations with Bethlehem Steel Company whereby Wemco is assigned exclusive manufacturing and sales rights for Steffensen Flotation Machines.

The Steffensen machine is of the pneumatic type and employs an air dispersion principle to produce quantities of small bubbles with a high total bubble area.

The new Wemco product, augmenting Wemco's extensive line of ore dressing equipment, will be manufactured in the company's Sacramento, Calif., shops.

New Wholesale Parts Depot For All I. H. Products

International Harvester Company has just announced completion of contract-letting for construction of a wholesale parts depot, costing approximately \$1,000,000, in South Memphis.

The depot, expected to be ready for occupancy next spring, will be built on a five-acre plot on the north side of Olive Avenue, west of Arkansas Street. Employing some 200 persons when in operation, the depot will serve as a wholesale distribution center for parts for all Harvester products, including motor trucks, tractors, farm machines, industrial power equipment, and refrigeration. The depot will serve both dealers and company district operations in Arkansas, Louisiana, Mississippi, west Tennessee, southwestern Kentucky, southeastern Missouri and a portion of east Texas.

Booklet Describes M.S.A. Mobile Safety Stations

The many advantages offered by the M.S.A. Mobile Safety Stations to the mining industry in mine rescue, first aid, and instructional work are fully illustrated and explained in a four-page bulletin recently issued by the Mine Safety Appliances Company. More economical to operate than stationary rescue stations, M.S.A. Mobile Safety Units are equipped with every essential for safety, and provide the necessary service when and where it is most needed.

Denver Firm New Marion Distributor

Ray Corson Machinery Company with headquarters at 350 Kalamath Street in Denver has been appointed Marion Power Shovel Company distributor for the entire state of Colorado.

Ray E. Corson is president and general manager of the firm. J. J. Booth is vice president and sales manager and J. E. Biggs serves as treasurer and office manager.

The company was established in 1932 and incorporated in 1948. In addition to Marion, it serves as distributor for some ten other prominent manufacturing concerns.

Allis-Chalmers Names Santa Clara Dealer

The Rosendin Electric Works, 1070 Park Ave., San Jose, Calif., has been named Santa Clara county dealer for Allis-Chalmers motors, controls, centrifugal pumps and transformers, and a certified service shop for the company's motors, transformers and controls in the same area.

More on Page 84

PROFESSIONAL DIRECTORY

One-Inch Card. \$35 Yearly—1/2-Inch. \$20 Yearly. Payable in Advance.

ACME DRILLING SERVICE

Ore, Gravel and Water Prospecting
Keystone Churn and
Diamond Core Drilling
Surface and Underground

832 Cleveland St. Oakland 6, Calif.

Anderson, Richards & Spencer

Registered Mining and Metallurgical Engineers
Box 401 Palmer Building Baker, Oregon

ARIZ. TESTING LABORATORIES

CLAUDE E. McLEAN, REGISTERED ASSAYER
Analytical and Consulting Chemists
Box 1888 823 E. Van Buren Phoenix

Flotation Reagents

BEAR BRAND XANTHATES
SUNNY SOUTH D. D. PINE OIL-A

Complete line of all standard flotation
reagents, also metallurgical and assay
chemicals carried in stock.

H. J. BARON COMPANY

805 Mills Building
EL PASO TEXAS

ORE SAMPLERS & SHIPPERS' AGENTS

Beach & Company

Phone 258—P. O. Box 574
131 E. Eighth St., Leadville, Colo.

Branches at Amarillo and Dumas, Texas.
All Utah smelters and other places by
arrangement. Address all communi-
cations to the Leadville office. Oldest,
most reliable.

Rates reasonable.

SHIPPERS' REPRESENTATIVES

at Tacoma Smelter for over 35 years
Control and Umpire Assaying

BENNETTS

Chemical Laboratory, Inc.

1131 Market Street • Tacoma 3, Wash.

B. W. DEASON V. E. WORSLEY

BLACK & DEASON

Assayers and Chemists
Ore Shippers Represented at all Smelters
P. O. Box 21888 Salt Lake City, Utah

F. J. BOODY

ASSAYER and MINING ENGINEER
648 W. Oro Street Tucson, Arizona
Phone: 6336-W

CLARK, ADDISON N.

Consulting Mining Engineer and Geologist
Syndicate Bldg., 1440 Broadway, Oakland, Cal.
ELECTRO-GEOPHYSICAL SURVEYS

THE COLORADO ASSAYING CO.

ASSAYERS, CHEMISTS, and
SPECTROGRAPHERS
Est. 1909

Charges: Gold 75c. Silver 75c. Copper 75c. Send
for Free Copy of Our Mineralogist's Pocket
Reference Giving Detailed Information on All
the Principal Ores.
2013 WELTON ST., DENVER 1, COLORADO

C. Ivan Nichols

Wm. J. Deason

DEASON & NICHOLS

ASSAYERS AND CHEMISTS

Supervision of Ore Sampling at Smelters
160 S. W. Temple St., Salt Lake City 1, Utah

DIAMOND DRILL

Contracting Company

S. 18 Stone Spokane 15, Wash.

"DIA-HARD" CORE

BARRELS

AND

DIAMOND DRILLING SUPPLIES

Core and Churn Drill Contractors

EL PASO TESTING LABORATORIES

Umpire Assayers—Chemists—Metallurgists
Shippers' Representatives
At

El Paso Smelter—Phelps Dodge Refinery
For Ores and Scrap Metals
P. O. Box 1565, El Paso, Texas

R. L. GILMORE, E. M.

AND ASSOCIATES — ENGINEERS

Mining—Petroleum—Chemical—Metallurgical
Geological Examinations and Reports
Mine Examinations—Mine Management and
Operation—Ore Analysis
GEOPHYSICAL EXPLORATION
625 E. Broadway Long Beach 2, Calif.

GOODALL BROTHERS

ASSAYERS AND CHEMISTS
SHIPPERS' REPRESENTATIVES
Established 1909

Helena

Montana



CORE & BLAST HOLE CONTRACTOR

509 W 2ND AVE., SPOKANE 9, WASH.

HAMILTON, BEAUCHAMP & WOODWORTH

Metallurgical and Mechanical
Consulting Engineers Ore Testing
Design, Construction, Operation of Milling
Plants

564 Market Street San Francisco 4, Calif.

HANKS, INC., ABBOT A.

ASSAYERS AND CHEMISTS
Supervision of Sampling at Smelters
Laboratory Ore Tests

624 Sacramento St. San Francisco

HAWLEY & HAWLEY

W. E. HAWLEY, Mgr.

Assayers, Chemists, Ore Buyers
Shippers' Representative

P. O. Box 1060 Douglas, Arizona

HERMAN, JOHN

ASSAYER AND CHEMIST

Complete Qualitative Spectrographic
Analysis

I Do Not Guarantee Satisfaction
I Guarantee Accuracy

920 Santee St. Los Angeles 15, Calif.

GEOPHYSICAL SERVICE

Since 1932

CHAS. A. ISHAM

230 Redwood Ave.

N. Sacramento 15, Calif.

HERBERT BANKS JOHNSON

CONSULTANT

Electrostatic Separation
Process Developments

76 Elmwood Ave. Rochester 11, N. Y.

SHERWIN F. KELLY

GEOPHYSICAL SERVICES, INC.

Room 318, 900 Market Street

Wilmington, Delaware



Laucks Laboratories'

"185 MINERALS"

and
NOW TO
IDENTIFY THEM"

is the best guide obtainable

50¢
Per Copy

1008 Western Ave. • Seattle

JOSEPH T. MATSON

CONSULTING MINING ENGINEER

Examinations — Appraisals — Operations

216 Radio Plaza, P. O. Box 170, Santa Fe, New Mexico

H. GRATTAN LYNCH*Geologist and Mining Engineer*Evaluation, Development, Management
Mines and Oil Lands742 Peyton Building
Spokane 8, Wash.2790 Bayside Walk
San Diego 8, Calif.**The MERRILL COMPANY
ENGINEERS**Hobart Bldg. 582 Market St.
SAN FRANCISCO, CALIFORNIA**ARNOLD H. MILLER***CONSULTING ENGINEER***ROBERT LEROY HALLETT, ASSOCIATE**General Mine, Mill and Industrial Appraisals, Plant Design, Mechanization
Cable: "ALMILL" Tel. Cortland 7-9635
120 Broadway New York City 5, N. Y.**STANLEY M. MOOS***MACHINERY CONSULTANT*El Paso, Texas—P. O. Box 321
106 Texas St. Tel. 2-6838
CABLE ADDRESS "MOOS"
Mexico, D. F. Apartado 215**MURPHY, F. M.***Consulting Mining Geologist*

1201 Maryland Parkway, Las Vegas, Nev.

RODGERS PEALE*Consulting Mining Geologist*

315 Montgomery St. San Francisco 4, Calif.

ROOT & SIMPSON, INC.*Metallurgical Chemists and Assayers*P. O. Box 2069 Denver 1, Colo.
Established 1902**F. C. SCHAEFER & CO.**Own gold, silver, lead and zinc mining properties located most important mining sector of Mexico—FOR SALE OR LEASE. Address: Centenario Avenue No. 2, or P. O. Box 54, PARRAL, CHIH., MEXICO
Fully Posted on Mining, Fiscal and Labor Laws**SEWELL THOMAS***Consulting Mining Engineer*Plant Layout • Design • Detailing
Mechanization • Mining Methods

380 Gilpin St. Denver 3, Colo.

Smith-Emery Company

Assayers

Chemists

Engineers

Mill Tests and Design
Ore Shipments Certified

920 SANTEE STREET, LOS ANGELES

Southwest*Continued from Page 80*

ties by a 2,500 kw. turbine electric generating plant. About 40,000,000 cu. yds. of gravel is contained in the placers. Dragline operations, recently discontinued due to the exhausting of shallow deposits, have already taken out 1,000,000 cu. yds.

NEW MEXICO

Development and stockpiling of ore continues and two new inclined shafts have been completed at the Zuni Milling Company's No. 21 fluor-spar mine at Grants, New Mexico. One of the shafts has been equipped with a skip and hoist and the other with a belt conveyor. The company will add several more men to its payroll, according to George Warner, general manager, who said that about 60 were presently employed.

When completed, American Smelting and Refining Company's new concentrating plant at Deming, New Mexico, will have a 400-ton daily capacity at the beginning and will replace the company's Hanover mill. The plant will treat ore from the company's mine at Vanadium and will also accept custom ore. Stearns-Rogers Manufacturing Company of Denver is doing the construction.

Improvements are to begin on the concentrator and smelter at the Hurley, New Mexico, property run by Kennecott Copper Corporation's Chino Mines Division, as well as on the open-pit mine at Santa Rita. About \$2,000,000 will be spent to increase operating efficiency and output, including the building of a new 100' reverberatory furnace and installing of a 12,500 k.v.a. generator.

Three miles north of Scholle, Torrance County, New Mexico, William McIlhane has filed the Sandstone copper mining claim on an area of recently discovered low-grade radioactive sandstone and a seam of carnotite. Carnotite has been found in this district before running through the Abo sandstone formation, a fairly large area. McIlhane got appreciable Geiger reactions from his find in sandstone and arkose just below the known Abo carnotite occurrences.

AMC Convention*Continued from Page 21*

the U. S. Bureau of Mines, Denver, Colorado.

The final report of the Resolutions Committee will be made at the close of the Wednesday morning sessions.

Group conferences of producers interested in particular matters, including taxes, strategic minerals, and gold will be held Wednesday after-

noon. The Annual Banquet will be held at the Davenport Hotel that evening and will be followed by star entertainment and dancing.

A number of field trips have been arranged for September 29 and 30 to give those attending the convention an opportunity to visit nearby mining operations and to inspect metallurgical plants of the Northwest.

FRED W. SHERMAN*Consulting Mining Engineer*Mine Examinations, Mineral Examinations,
Mine Surveying and Mapping, Reports
and Estimates.
1550 Montgomery Street, Oroville, Calif.**W. H. STOWELL & CO.***Chemists and Assayers*421 Sprague Ave. Spokane, Wash.
Estb. 1890**SEAL-TITE
TAMPING
BAGS****Save Time
and Money
in Handling
Dummies**

High wet strength and toughness withstand humidity and hard handling. Supplies of dummies are made up quickly and can be stored underground under wet conditions. Send for samples.

Tamping Bag Co.
210 S. THIRD ST.
MT. VERNON, ILL.**CARL TRISCHKA***Consulting Registered Geologist**Mining Engineer*

Mine Examinations, Water, Reports

Box 402 Bisbee, Arizona

**VAN WATERS & ROGERS
INC.***Flotation Chemicals • Mining Reagents*Largest and Most Complete Stocks
in Northwest
Seattle, Spokane, Portland, Boise**PLACER DREDGES**

Dragline fed floating and Dryland Placer Dredges. Universal Portable Placer test machine for immediate deliveries. Your inquiries invited.

UNIVERSAL DREDGE MFG. CO.

609 Security Life Bldg.

Denver 2, Colorado

O. W. WALVOORD CO.*MILL-Design and Construction*

401 High St. Denver 3, Colo.

WOOD ASSAYING CO., HENRY E.*Established 1878**ASSAYERS and CHEMISTS*

2042 Broadway Denver 2, Colorado

DENVER EQUIPMENT CO.



1404 Seventeenth St.
Denver 17, Colorado

Please send special prices and descriptive information on reconditioned equipment listed below:

- ☐ AGITATORS—(2) 15' 4 1/2" x 12' Denver Side Airlift Agitators, 2-4" side airlifts each, open gear type, bolted steel tanks.
- ☐ CLASSIFIER—(1) Dorr Duplex Rate Classifier, 5' x 26' 8", Type DSFH, with 5 HP motor and controls.
- ☐ CONCENTRATORS—(18) Humphreys 5-Turn Spiral Concentrators.
- ☐ CRUSHER, JAW—(1) 9" x 16" Denver Type H Jaw Crusher, alloy iron frame and bumper, grooved flywheel.
- ☐ CRUSHING ROLLS—(1) 24" x 20" Rogers Iron Works Crushing Rolls with motors and drives. Nearly new.
- ☐ ELEVATORS—(4) 42" high Belt and Bucket Elevators, heavy duty type with 18" x 8" x 8 1/2" malleable iron buckets; cast iron pulleys; take ups; heavy duty rubber covered belting; and 25 HP gear-motor speed reducer with starting equipment for 3 phase, 60 cycle, 440 volts.
- ☐ FEEDERS, ORE—(4) Merrick Feed-weight Feeders, 20" belt, 1 HP vari-speed motor drive and controls.
- ☐ FILTER—(1) 8' dia. x 4' face Oliver United Hopper Dewaterer Filter, top feed type with 5 HP Reeves vari-speed motor, drive and controls.
- ☐ FILTERS—(1) 6' x 3-disc and (1) 4' x 4-disc American Filter, belt drive with vacuum equipment.
- ☐ JIG—(1) 8" x 12" Duplex Denver Selective Mineral Jig, right hand, with motor and drive.
- ☐ PLACER UNIT—(1) No. 3 Denver Trommel-Jig Placer Unit with 8" x 12" Duplex Denver Selective Mineral Jig complete with pump and 4 HP Fairbanks-Morse gas engine.
- ☐ PUMPS—(1) 4" Triplex and (1) 6" Triplex Denver Adjustable Stroke Diaphragm Pump with gear-motor and drive.
- ☐ SAMPLERS—(2) Geco Samplers, 21" cutter travel, one dry, one wet cutter.

All items offered subject to prior sale.

I am also interested in the following equipment:

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____

THE MARKET PLACE

Lightweight Parts Reduce Weight of Diesel Engines

Weight reductions of from 6 1/2 to 8 percent in Cummins Diesel engines are made possible by a new series of lightweight parts announced by the Cummins Engine Company, Inc., Columbus, Indiana. A portion of these parts will be available as optional equipment on engines constructed after February 28, 1949, and the remainder of the series will be available after April 30, 1949.

These weight reductions are particularly important to operators of Cummins Diesels in over highway trucking service, will be applicable to any other installations where engine weight is a factor.

Decrease in engine weight through use of these lightweight parts ranges from 151.4 pounds in Model HRB-600 to 193.8 pounds in Model HB-600. The total increased earnings of a particular trucker operating, for example, 125,000 miles per year with the Model NHBS-600 Cummins Diesel engine would be \$725.

New Dealer for A-C General Machinery Div.

Newly named Pacific Coast dealers for Allis-Chalmers general machinery division include Fisher Brothers Co. (Industrial Sales Division), 8 Seventh St., Astoria, Ore., and May-Air, 1301 Tenth St., Modesto, Calif.

Fisher Brothers Co. is dealer for Allis-Chalmers motors, controls and centrifugal pumps in Clatsop and Columbia counties, while May-Air is dealer for Allis-Chalmers motors, controls, Texrope drive equipment and centrifugal pumps in San Joaquin, Stanislaus, Merced, Tuolumne and Calaveras counties.

MINES — MILLS
•
RAILROADS
•
MACHINERY
•
COMPLETE PLANTS

BOUGHT—SOLD
LIQUIDATED



DULIEN STEEL PRODUCTS, INC.
of Washington
9265 E. MARGINAL WAY
LANDER 6000
SEATTLE 8, WASH.

ALLISON STEEL MANUFACTURING COMPANY

Mine and Mill Buildings • Mine Rails • Ore Cars • Steel Gallows Frames • Ball Mills Muck Plates • Crucible Drill Steel

• We offer a complete repair service to the Mining Industry. Our new Machine Shop is equipped to handle your work quickly and economically.

Hot Milling of All Types of Detachable Bits

SOUTH 19th AVENUE
PHOENIX ARIZONA
PHONE 3-5161

HOSE SALE DELIVERED FREIGHT PREPAID

BRAND NEW "GOODRICH" 4" DISCHARGE HOSE

Complete with male and female couplings. 200 lbs. pressure, rubber-lined, in 50-ft. lengths. SALE PRICE:

—USES—

Strip Mining; Portable Pipe Lines; Fire Hose; Sewer & Trench Work; Discharge on Pumps.

\$30.00 for 50-FT. LENGTH. FREIGHT PREPAID UNITED STATES

IMMEDIATE DELIVERY • ORDER NOW

BERNSTEIN BROTHERS
SINCE 1890 - PHONE 8404
PUEBLO, COLORADO

MINING WORLD

with which is combined

MINING JOURNAL

The Production Magazine of the Metal Mining Industry

Published at

SAN FRANCISCO, CALIFORNIA

\$3.00 Per Year 13 Issues

(Includes Mine Development and Directory Number)

MINING WORLD

THE MARKET PLACE

MINE & MILL EQUIPMENT—REBUILT & GUARANTEED

THICKENERS

- 1—15'x10' Dorr, Wood Superstructure and Tank
 - 1—20'x8' Dorr Type Steel Superstructure, Wood Tank
 - 1—20'x8' Booth-Thompson, Steel Superstructure, Wood Tank
- (All units complete with motors and pumps)

PUMPS—CENTRIFUGAL

- 2—2BV-1 Ingersoll-Rand Motor Mounted
- 2—1½RV-3 Ingersoll-Rand Motor Mounted
- 1—2RVH-7½ Ingersoll-Rand Motor Mounted
- 1—1½RVH-10 Ingersoll-Rand Motor Mounted
- 4—2RVH-15 Ingersoll-Rand Motor Mounted
- 1—3RVH-25 Ingersoll-Rand Motor Mounted
- 1—2" Allen-Sherman-Hoff Hydrosol Slurry Pump—Motorized
- 2—5" Allen-Sherman-Hoff Hydrosol Slurry Pump—Motorized
- 1—8" Allen-Sherman-Hoff Hydrosol Slurry Pump—Motorized

BELT CONVEYORS

- 1—14", 20' centers, new belt, V-belted to 1½ HP Motor
- 1—24", 15' centers, Motorized
- 1—30", 70' centers, Motorized
- 1—42", 20' centers, Motorized

FLOTATION MACHINES

- 3—No. 24 Denver "Sub-A" with wood tanks

PUMPS—SAND

- 1—2" Split Case Wilfley Pump—rubber lined—motorized
- 3—2" Wilfley Pumps—solid bowls—rubber lined—motorized
- 4—2" Wilfley Pumps—motorized

CLASSIFIERS

- 1—6"x22" Dorr Type Duplex Rake Classifier
- 1—60"x23" Denver Equipment, Simplex Cross Flow Classifier

BALL MILLS

- 1—No. 64 Marcy
- 1—8x7 Allis-Chalmers

VIBRATING SCREENS

- 1—3'x6' Plat-O, motorized
- 1—3'x6' Tyler-Niagara, motorized

WAGON DRILLS

- 1—Sullivan #LW-6, on steel wheels, with drifter, etc.
- 1—Ingersoll-Rand with pneumatic tires, drifter, etc.

FILTERS—DISC

- 1—6-disc, Eimco, with vacuum equipment

SAMPLE CUTTERS

- 4—Gen. Elec. Wet Sample Cutters, with auto. timers and ½ HP single phase gear motors

SLUSHER HOIST

- 1—Ingersoll-Rand, 3-drum, with built-in 50 HP AC motor with two 1½ yd. scrapers (used 30 days)

DIESEL GENERATORS

- 3—D-13000 Caterpillar Diesel Engines, direct connected to 75 KW, 440 volt AC Generators
- 1—D-4400 Caterpillar Diesel Power Unit, V-belted to 220 volt AC Generator (will sell with or without generator)

MISCELLANEOUS EQUIPMENT

- 1—3'x6' Plat-O Vib. Screen
- 1—3'x6' Tyler-Niagara Vib. Screen
- 1—8'x28' Long double deck Shaker
- 1—30'x15' Revolving Screen
- 1—48'x16' Revolving Screen
- 1—Rock Duster with DC Motor
- Ingersoll-Rand Motor Mounted Pumps, 1HP to 25 HP
- Deming Oil-Rite Piston Pumps
- Magnetic Pulley Conveyors
- Underground Mine Transit
- Electric Motors, ½ HP to 75 HP

WRITE FOR NEW BULLETIN NO. 10

FLORENCE MACHINERY & SUPPLY COMPANY

Suite 904 Equitable Bldg.

C. J. PARRISH, Mgr.

Denver 2, Colorado

SALE

Machinery and Supplies—Available at WALKER MINE, PORTOLA, CALIFORNIA

Priced to sell immediately—all in first class condition unless otherwise specified

PIPE

- 10,000 ft. 6" Std. black pipe—threaded.
- 5,000 ft. 4" Std. black pipe—threaded.
- 4,000 ft. 3" Std. black pipe—threaded.
- 4,000 ft. 2" Std. black pipe—threaded.
- 5,000 ft. 1½", 1", ¾", ½"

3 CONDUCTOR CABLE

- 7,000 ft. No. 3/0 2500 volt, lead encased, steel wrapped, Type VCLIF
- 2,000 ft. No. 4, 2500 volt, lead encased, steel wrapped, Type RLIF
- 6,000 ft. No. 6, 600 volt, lead encased only, Type RLIF
- 200 ft. No. 3/0, 2300 volt, lead encased only

RAIL

- 10 ton—12# Rail
- 50 ton—30# Rail
- 50 ton—40# Rail
- 150 ton—60# Rail
- 1—Link Belt 1-yd. Shovel #1389, includes 50 ft. dragline boom and 1-yd. Ameco bucket, Waukesha 100 HP engine
- 2—Hand powered overhead traveling cranes, 3-5 ton, 10½ ft. span: 10 ton, 30 ft. span
- 4—S and 10 ton Yale and Towne chain hoists

MINE HOISTS

- 1—7½ HP single drum shaft hoist
- 1—30 HP single drum shaft hoist
- 1—50 HP single drum shaft hoist
- 1—60 HP single drum shaft hoist
- 1—75 HP single drum shaft hoist
- 1—55 HP double drum shaft hoist
- 1—75 HP double drum shaft hoist
- 1—100 HP double drum shaft hoist
- 1—150 HP double drum shaft hoist (Lillie controller)

TRANSFORMERS

- 5 KW, 10 KW, 15 KW, 25 KW, 2200 to 110/220 3 each, 25 KVA, 50 KVA, 75 KVA, 100 KVA, 2200/220/440 with taps

MOTORS AND STARTERS

- 50 HP, 75HP, 100HP, 150 HP, 200 HP, 2200 volt slip ring and squirrel cage types

PUMPS

- 1—Worthington triplex, 2½"x5, 75 GPM, 800 ft. GPM, 200 ft.
- 1—Byron Jackson 20 HP, 5g, stage cent., 200 GPM, 200 ft.
- 1—Kimball Krogh 10 HP, 200 GPM, 100 ft.
- 1—Oliver 3 HP, 150 GPM, 60 ft.
- 1—Gould Pyramid, 2½"x2¾", 12-15 GPM, 500-600 ft.
- 1—R #11/MRV20—125 GPM, 330 ft.
- 1—Kimball Krogh solid lined tailings pumps, 10-15 HP

MISCELLANEOUS

- 1—Model 21 Eimco Loader, 24" ga.
- 20—8 ton Gable bottom cars, 24" ga.
- 18—15 cu.ft. 18" ga. swivel end dump cars
- 1—2 HP 110 V, Ray oil burner (100 HP)
- 1—55x24 A-C "Anaconda" rolls
- 2—Large transformer towers, steel
- 1—Gearhart oil furnace
- 1—Steam hammer
- 1—3'x2" double inlet Jeffrey reversible fan, 30 HP or 50 HP
- 1—4" double inlet Jeffrey reversible fan, 50 HP
- 3—35 KW, 250 volt, 50 HP M-G sets
- 1—2000 CFM Worthington two stage air compressor, 350 HP synchronous motor
- 1—230 CFM Gardner Denver Model WBQ with 50 HP built-in motor
- 2—Oliver vacuum pumps, 14x8 and 9x8 sizes
- 1—65 ft. heavy duty bucket elevator, 16"x8x6 buckets
- 1—No. 75 Marcy Ball Mill, new liners, motor
- 1—4x8 Allis-Chalmers 2 deck vibrating screen
- 2—6x23½ ft. Dorr Classifiers, DSD
- 1—42"x16" Apron Feeder
- 1—Curtis Sawmill, 18 ft. carriage with head rig, rolls chain, etc.
- Westinghouse Baldwin 24" ga. 250 volt trolley locomotives, also 18" ga.
- 30"x46" new bolted steel bldg.
- Mine phones, air receivers, tanks, small motors, etc.
- 1—Allis-Chalmers 510 CFM Rotary Vacuum or Low Pressure Air Compressor

F. J. SULLIVAN

MAIL—PORTOLA, CALIFORNIA

TELEPHONE—c/o WALKER MINE, via QUINCY, CALIFORNIA

THE MARKET PLACE

MINING AND MILLING MACHINERY ELECTRICAL, INDUSTRIAL and CONSTRUCTION EQUIPMENT

LOCOMOTIVES

- 2—2 to 2½ ton Mancha Battery Locomotives, 18" gauge
- 1—2½-ton Whitcomb Battery Locomotive, 24" gauge
- 1—7-ton Mancha Battery Locomotive, 36" gauge
- 2—7-ton General Electric Battery Locomotives, 36" gauge
- 2—4-ton General Electric Battery Locomotives, 36" gauge
- 4—10-ton Atlas Battery Locomotives, 36" gauge
- 1—3-ton Ruth Gasoline Locomotive, 18" gauge
- 1—3-ton Whitcomb Gasoline Locomotive, 24" gauge
- 3—6½-ton General Electric Trolley Locomotives, 36" gauge

BLOWERS

- 1—6½" x 22½" Roots Rotary Positive Pressure Blower
- 1—10" x 18" New Suterbilt Rotary Positive Pressure Blower
- 1—9½" x 29½" Roots No. 1 Rotary Positive Pressure Blower
- 1—16" x 36" Roots No. 5 Rotary Positive Pressure Blower
- 1—16" x 48" Cornersville No. 5 Rotary Positive Pressure Blower
- 1—24" x 72" Roots No. 7 Rotary Positive Pressure Blower
- 37—New Type HS American Volume Blowers, complete with motors (16 AC and 21 DC)
- 4—Mueller No. 24-SR New Volume Blowers
- 1—North American 825 cfm. Furnace Blower, direct driven by 7½-HP G. E. totally enclosed motor

LOADERS

- 3—No. 12-B Einco Rocker Shovel Loaders, 18" gauge
- 1—No. 20 Einco Rocker Shovel Loaders, 24" gauge
- 1—GD-5 Gardner Denver Loader, 18" gauge
- 2—No. 20A Conway Mucking Machines, 24" gauge
- 4—No. 50A Conway Mucking Machines, 24" gauge
- 1—Northern Portable Unloader Conveyor, 14" wide by 14' 4" long, driven by 6-HP Wisconsin gas engine
- 1—Farquhar Portable Unloader Conveyor, 18" x 18", powered by 4-HP Briggs & Stratton gas engine

JAW CRUSHERS

- 1—8" x 8" Universal, semi-steel
- 1—9" x 16" Cedar Rapids, all steel
- 1—9" x 16" New Morse
- 1—8" x 24" Rogers, cast steel
- 1—8" x 36" Universal, all steel
- 1—15" x 20" Universal, all steel
- 1—10" x 24" Allis-Chalmers
- 1—24" x 36" Traylor, Type A Blake
- 1—9" x 15" Farrell Blake
- 1—9" x 36" Cedar Rapids

FINE REDUCTION CRUSHERS

- 1—2' 4" Traylor type TY Reduction Crusher
- 1—3' Symons Cone Crusher

BALL AND ROD MILLS

- 1—30" x 24" new Morse Bros. batch ball mill
- 1—4' x 4' new Ball Mill
- 1—No. 64½" Marcy Ball Mill
- 1—6' x 8" Marcy Ball Mill
- 1—8' x 22" Hardinge Conical Pebble Mill
- 1—3' x 8' Deko
- 1—3' x 9' Ruth Rod Mill
- 2—6' x 36" Hardinge Conical Ball Mills
- 1—5' x 36" Hardinge Conical Ball Mill

GYRATORY CRUSHERS

- 1—No. 6 Kennedy-Van Saun roller bearing
- 1—No. 37 Kennedy-Van Saun type 8 roller bearing, fine reduction crusher
- 1—10" Traylor "Bulldog" type T crusher

TUGGER HOISTS

- 10—Size EU Ingersoll-Rand "Utility" Air Hoists
- 1—Model 6HC Ingersoll-Rand "Little Tugger" Air Hoist
- 2—Size A4NM-OJ Ingersoll-Rand 2 Drum Air Slusher Hoists
- 1—5 HP Sullivan Slusher Hoist Class RH, 3/60 220-440
- 2—5 HP Ingersoll-Rand 2 Drum Slusher Hoists, model 5 NNOH, 3/60 220-440
- 3—6½ HP Sullivan Single Drum Tugger Hoists, type HE, 250 volts DC
- 9—6½ HP Sullivan Double Drum Tugger Hoists, type HDE, 250 volts DC
- 1—7½ HP Sullivan Slusher Hoist, class RH, 3/60 220-440
- 2—7½ HP Ingersoll-Rand Slusher Hoists, size 107, 3/60 220-440
- 1—15 HP Ingersoll-Rand Slusher Hoist, model 15NOF, 3/60 220-440
- 1—20 HP Ingersoll-Rand 3 Drum Slusher Hoist, model 20 MNM-2D, 3/60 220-440
- 1—25 HP Ingersoll-Rand 3 Drum Slusher Hoist, model 25 NNN-3D, 3/60 220-440
- 1—25 HP Sullivan Double Drum Slusher Hoist, type B-211, 3/60 220-440

PORTABLE COMPRESSORS

- 1—105 CFM Schramm Portable Compressor driven by Buda Gas Engine, Trailer mounted on 4 pneumatic tires
- 1—210 CFM Worthington "Blue Brute" portable Compressor driven by Continental Gas Engine

Extensive stock of fully reconditioned machinery. Send for bulletin 481-M.

MORSE BROS. MACHINERY CO.

2900 BRIGHTON BLVD. • DENVER, COLORADO • ESTABLISHED 1898

CHANGE OF ADDRESS

CIRCULATION DEPARTMENT

MINING WORLD with which is combined the Mining Journal
121 Second St., San Francisco 5, Calif.

Please change the address of my Mining World subscription.

NAME _____

OLD ADDRESS _____

NEW TITLE OR POSITION _____

NEW ADDRESS _____

NEW COMPANY CONNECTION _____



Style 38

We Have in Stock

DRESSER COUPLINGS

All Sizes

Bolted and Boltless Types

Permanent Joints for Steel and Cast Iron Pipe

PACIFIC PIPE COMPANY

401 Folsom Street

San Francisco 5

50 KW-CATERPILLAR-75KW

Diesel Electric Sets

"AS IS" or CATERPILLAR
"Remanufactured" guarantee
\$2,000 to \$7,000

Totally enclosed sets available

Other sizes from 10KW to
1,000KW

Rentals—Sales

Everson Supply Company

15712 S. Leahy Ave., Bellflower, Calif.
Phone: Torrey 7-3514

FOR SALE

Small Boyles Bros. diamond or core drill with capacity limit of 200 ft. Seven-eighths inch diameter core, complete Briggs Stratton engine driven. Almost new. Larger improved pump with separate gas engine added. 150 feet of rods, one facing or starting bit, and one 5' and one 10' barrel included. Price \$800 as is, ready to use. Also have two additional new bits and several partly used bits. Address D. S. Holmes, Nehalem Hotel, Vernonia, Oregon.

FEDERAL PIPE & TANK CO.

—WOOD PIPE and WOOD TANKS—

Factory
and Main Office

6851 E. Marginal Way
Seattle 8, Wash.

THE MARKET PLACE

Mine Supt., ign., Spanish	\$10,000
Chem. Engr., budget control	\$7,000-9,000
Asst. Mech. Engr., ign.	7,000-9,500
Asst. Mill Supt., ign.	6,000-8,000
Asst. Mine Manager, ign.	Open
Asst. Mine Supt., E. M. ign. (2)	\$500-\$550
Asst. Chief Mech., Engr., mine, ign.	Open
Mine Engr., ign., 1 Chl.	\$400
Master Mech., mine, ign. (2)	\$400 & \$450
Asst. Mine Supt., foreign	450
Open Pit Track F'man	405
Mine Foreman, E. M., ign.	400
Asst. Pit F'man, E. M. Grad.	300
C. E. Construction, mce.,	350
Metallurgists, ign.	300
Chemists, grads., (2), ign.	300
Mill Foreman, ign.	400
Smelter Field Engineer, ign.	\$450-500
Mine Foreman (4), ign., E. M.	300-400
Jr. Mine Engr., ign.	300-350
Mine Shifters, ign., S. A. & C. A.	250-350
Cyanide Flot. Shifters, ign.	250-375
Refinery Foreman (3), smelting, ign.	350
Mine Electrician, ign.	400
Mine Engr., ign.	300
Chief Elect., E. E., mine, ign.	365
Mine Met. Auditor, ign.	500
Mine Warehouse Chl., ign., sp. Span.	400

GLENN B. WILSON

Employment Specialists

307 CONTINENTAL OIL BUILDING
DENVER 2, COLORADO

Mine superintendent, ign.	\$10,000
Asst. mine superintendent, ign.	6,000
Chief mine engineer, ign.	4,800
Mine foreman, ign.	5,000
Mill foreman, ign.	350
Asst. mine electrician, ign.	350
Lead smelter foreman, ign.	400
Refinery foreman, ign.	350
Jr. mine engineer, ign.	325
Asst. mill supt., ign.	500
Asst. smelter engineer, ign.	525
Mechanical draftsman, ign.	500
Asst. mine supt., ign.	400
Electrical designer, ign.	500
Metallurgist, ign.	400
Jr. geologist, ign.	350
Mine shift boss, ign.	325
Geologist, U. S.	350
Chemist Assayer, U. S.	250
Research chemist, U. S.	400
Metallurgist, U. S.	350
Mechanical engineer, U. S.	400
Jr. mine engineer, U. S.	300
Assayer, U. S.	275
Mine accountant, Mexico	400
Mine warehouseman, Mexico	400
Stenographer, ign.	275
Asst. chief mechanical and electrical engineer, ign.	800
Asst. mill superintendent, ign.	690
Mill foreman, ign.	400
Mine master mechanic, ign.	400
Mine electrician, ign.	400

BUSINESS MEN'S CLEARING HOUSE

601 Midland Savings Bldg.
Denver 2, Colorado
Established 1903

FOR SALE: 165' 2 stage Sullivan compressor, Eimco \pm 11 mucking machine, just rebuilt. Model HK G-D Tugger. Model HKD G-D slusher hoist, Mitchell diamond drill, 250' rods, 4-20 cf R.B. ore cars, side dump, 5-14 cf R.B. end dump cars. Stoppers, drifters, sinkers, drill steel, columns, etc. 8 ton 12-lb. rails, 1500' new 2 1/2" B1 pipe, 1000' 1 1/2" and 2" B1 pipe, valves and fittings, 500 hot milled Timken bits, 1 1/2" to 2" No. 175 Coppus Vano Blower, 200' 8" Ventube, 2 mine telephones, 4x4x7 Cameron steam pump, 4-Pan-American rougher flotation cells, 1 Pan-American cleaner flotation cell, reagent feeders, capacity 50 tons per day, 1 Union Iron Works ball or rod mill 3 1/2' x 7'. DEAN MINES, BATTLE MT., NEVADA.

DIESEL GENERATOR PLANTS

Complete with Switchboards

1,000 KW TO 100 KW
STATIONARY AND PORTABLE
AT GREATLY REDUCED PRICES
NEW UNIT GUARANTEE

HERCULES ELECTRIC MACHINERY and EQUIPMENT CO.

Tel. Nevada 6-2808

Cable Address HEMCOY

1412 South Alameda Street

Compton 1, California.

Market Place Advertising

360 inches	\$4.50
180 inches	\$5.00
90 inches	\$5.50
45 inches	\$6.00
Less than 45 inches	\$6.50

Contract rates based on total number of column inches used within one year.
30 column inches equal one page.

Closing date: 1st of month preceding publication.
(Used and reconditioned equipment, liquidations, property sales only)
For additional 10,000 WORLD MINING export distribution: Add 50%

MACHINERY IMMEDIATELY AVAILABLE

- 2-3 1/2-ton 24" gauge Mancha Titan Trave "A" 3-battery locomotive, 80-volt batteries
- 3-14" bucket elevators, 22' long
- 1-15" x 38" Pacific jaw crusher
- 1-24" x 36" Farrel-Bacon jaw crusher
- 1-3" Symons cone crusher
- 1-2" Symons cone crusher
- 1-100 H.P. 2-speed Hease-Erstad 2-drum hoist
- 1-125 H.P. 900 RPM slipring motor
- 1-210 cu. ft. Worthington portable compressor
- 2-Union Iron Works flotation machines, 4 and 5 cell, 24" x 24", all steel
- 1-5' x 4' Colorado ball mill
- 1-125 H.P. single drum mine hoist
- 1-16" x 24" Denver duplex jig

WRITE, WIRE OR PHONE

WASHINGTON MACHINERY AND STORAGE COMPANY

7329 E. Marginal Way, Seattle 8, Wash.
Phone: RAInier 1123

Contact A. M. HOEFLING

Route 3, Box 1063,
Oraville, California
Phone 1128-J

GOLD!?

If you think you have gold on your property and do not know you can get it out or make it pay let us help you. We have a Gold Separator that will solve your problem. Write today. No obligation, no gold—no pay.

DETROIT WINCH COMPANY

11000 E. McNichols Rd. Detroit 5, Mich.

3,146 ft. Sullivan Air Compressor
5' x 22", 6' x 48" and 7' x 108" Hardinge Ball Mills
5' x 22" A-C Tube Mill
4 x 10, 5 x 12 and 7 x 9 Rod Mills
24 x 36, 40 x 48 and 48 x 60 Jaw Crushers
4" and 5 1/2" Symons Cone Crushers
DARIEN, 60 E. 42nd St., New York, N. Y.

INDEX OF ADVERTISERS

Acme Drilling Service.....	82	Dulien Steel Products, Inc.....	84	Watson, Joseph T.....	82
Allen-Sherman-Hall Co., Inside Front Cover (Mining World)		E. I. duPont de Nemours, Inc.....	71	Warrick Scale Company.....	79
Allis-Chalmers Mfg. Co. (Gen. Machy. Div.).....	45	Elmer Corp.....	58	Warrick Supply Co.....	48
Allison Steel & Wfg. Co.....	84	Outside Front Cover (World Mining)		Miller, Arnold H.....	83
Alloy Steel & Metals.....	27	El Paso Testing Laboratories.....	82	Wine & Smelter Supply.....	53
Autelco Front Cover (Mining World)		Emco Concrete Cutting Co.....	66	Wine Safety Appliances.....	11
American Brattice Cloth Co.....	—	Excelsior Road Machinery Co.....	86	Moos, Stanley M.....	83
American Cyanamid Co.....	12	Inside Back Cover		Morse Bros. Machinery Co.....	86
American Manganese Div.....	49	Everest Supply Co.....	86	Murphy, F. M.....	83
American Potash & Chem. Corp.....	64	Federal Pipe & Tank Florence Machinery Co.....	85	National Malleable & Steel Castings Co.....	54, 55
American Smelting & Refining Co., Company.....	77	Galigher Co.....	67	Nordberg Mfg. Co.....	25
American Zinc, Lead & Smelting Company.....	77	Gardner-Denver Co.....	51	Pacific Foundry Co., Ltd.....	63
Anascondito Wire & Cable.....	82	General Motors Corp.....	7	Pacific Pipe Co.....	80, 86
Anderson, Richards & Spencer.....	82	Gilmer, N. L.....	82	Pease, Rodgers Division.....	8
Arizona Testing Laboratories.....	82	Goodall Brothers Goodman Mfg. Co.....	15	Perless Pump (Food Machinery Division).....	8
Baron, H. J. Company.....	82	Hamilton, Beauchamp & Woodworth.....	82	Plummer Mfg. Co., W. A.....	80
Bartell, A. O.....	80	Hanks, Albert A., Inc.....	82	Root & Simpson, Inc.....	83
Beach & Company.....	82	Hardinge Co., Inc.....	60	Schaefer & Co., F. C.....	83
Bemis Bros. Bag Co.....	79	Havlicek Diamond Drilling Co., Inc.....	82	Shell Oil Co.....	5
Bennett Chemical Laboratory, Inc.....	84	Hawley & Hawley.....	82	Sherman, Fred W.....	83
Bernstein Bros.....	84	Hercules Electric Machinery & Equipment.....	87	Standard Oil of Calif.....	75
Bethlehem Pacific Coast Steel Black & Dragoon.....	82	Herman, John.....	82	Stowell & Co., W. H.....	83
Bowdy, F. J.....	82	Hodging, A. M.....	87	Sullivan, F. J.....	85
Boyles Bros. Drilling Co.....	23	Holmes, D. S.....	86	Tamping Bay Co.....	83
Donker Hill & Sullivan Mining & Constr. Co.....	77	Humphreys Investment Co.....	34	Taylor Wharton Iron & Steel Co.....	35
Business Men's Clearing House.....	87	Independent Pneumatic Tool Co.....	42	The Timken Roller Bearing Co.....	4
Card, C. S., Iron Works.....	69	International Harvester Co.....	59	Thomas, Sewell.....	83
Caterpillar Tractor Company.....	29	International Smelting & Refining Company.....	76	Trishka, Carl.....	83
Chicago Pneumatic Tool Co.....	1	Isham, Chas. A.....	82	Union Oil Co.....	72
Clark, Addison N.....	82	Jeffrey Manufacturing Co., 30 and 31 (World Mining)	82	Universal Dredge Mfg. Co.....	83
Colorado Assaying Co.....	82	Johnson, Herbert Banks Joy Manufacturing Co., 30 and 31 (Mining World)	82	University Apparatus Co.....	83
Colorado Iron Works.....	47	Kelly, Sherwin F.....	82	Van Waters & Rogers, Inc.....	76
Columbian Steel Tank Co.....	64	Lacks Laboratories.....	82	Walwood Co., D. W.....	83
Commins Engine Co., Inc.....	3	Link-Belt Company.....	83	Washington Machinery & Storage Co.....	87
Darwin Corp.....	87	Inside Front Cover (World Mining)		Western Machinery Co.....	61
Dean Mines.....	87	Lynch, H. Grittan.....	83	Western Gear Works.....	9
Deason & Nichols.....	82	Mace Company, The.....	48	Widley, A. R., & Sons.....	83
Deister Concentrator Co.....	80	Magma Copper Company.....	79	Wilson, Glenn B.....	87
Denver Equipment Company.....	43	Malampy, Mark C. & Co., Ltd.....	62	Wood Assaying Co., Henry E.....	83
Denver Fire Clay Co.....	37			Yabs Manufacturing Co.....	52
Detroit Winch Co.....	82				
Diamond Drill Concentrating Co.....	82				
Durr Co.....	32				
The Dow Chemical Co. (Great Western Div.).....	28				

Business Opportunities

WICKENBURG district needs custom mill; large potential tonnage of lead-silver, gold and copper ores exist in thirty-mile radius. For complete information write Chairman or Secretary Wickenburg Council, A.S.M.O.A., Wickenburg, Arizona.

GOLD EXPLORATION

Extensive investigation California GOLD producer reveals exceptional opportunities develop profitable ore at small cost. Equipped mine and mill. Available, attractive terms, deal direct with owners. Engineer's report on request. Reply Box T-92, MINING WORLD, 121 Second St., San Francisco, Calif.

DAME FORTUNE BECKONS to an adequately financed man or company that can surely make millions by owning and exploiting more than a million tons of medium grade diatomite by manufacturing it into a high-priced product for which there is a large and constant demand. No hokey, but factual details from J. P. Hester, Box 307, Superior, Arizona.

FOR SALE, LEASE, or use on shares: Long-year diamond core drill, complete with rod, pump, winch, tripod, etc. Mounted on a 1½ ton four wheel drive truck. Dillon Mining Company, 3978 32nd St., San Diego 4, California.

WANT PRACTICAL MINING MAN who has equipment or will work for stock interest at good mine, Dugway, Utah. Nine claims, eight patented. Gold vein. Many high grade copper, lead and zinc veins. One shaft 300' deep, large fissure in quartzite. Balance lime and igneous. Drift on 200 level reaches large lead-bearing fissure. Must rehabilitate shaft and equipment and have not quite enough money for this. When in production, man hired will be in charge, on salary and given 10% bonus net profits ore sold. Fine opportunity. O. F. Peterson, 1204½ S. Orange Grove Ave., Los Angeles, Calif.

RUTILE GEMSTONES

Can supply as available, the new seasonally beautiful synthetic rutile gemstone, facet cut, showing greater brilliance than the diamond. Slightly harder than amethyst.

C. C. BOAK • TONOPAH, NEV.

POSITIONS OPEN

1. ASST. CHIEF MECHANICAL AND ELECTRICAL ENGINEER: Technical graduate mechanical engineer with at least 15 yrs. exp. Applicant should be capable of design, construction and general supervision of mechanical and electrical equipment of large mine and milling plant including industrial railroad, large diesel power plant, marine tugs and barges, machine shops, foundry, mechanical shovels and loaders.
 2. ASST. MILL SUPT.: Preferably technical graduate with 8 years responsible operating experience, with good knowledge of general flotation absolutely necessary. Knowledge of heavy sulphide flotation desirable. Must have good operating background with knowledge of milling equipment and maintenance with large milling plant.
 3. MILL FOREMAN: Either technical or practical mill man with considerable supervisory experience in flotation practices, mill operation and maintenance. Good operating background in large mill preferable.
 4. MASTER MECHANIC: Must have knowledge and wide experience blacksmithing practices and all metal mine equipment, including air drills, bits (detachable and conventional), compressors, ventilators, car loaders, piping, track and cars, hoists, slushers and general mine mechanic work. Under supervision of Chief Mechanical Engineer.
- Above positions are with well-established operating company. Sea level climate and temperature. Housing, furniture and utilities furnished; school for children to age 12; engagement 3-year contract with three months vacation at end of contract; traveling expenses paid; salaries open. Applicants state fully education, experience, age, physical condition, family status; give references and salaries received on previous employment; submit photograph. Address: Box T-90, MINING WORLD, 121 Second St., San Francisco, Calif.

FOR SALE

Mines and prospects of silver, gold, copper and lead.

C. M. IBARRA

Huatobampo, Sonora, Mexico

Positions Desired

POSITION WANTED

MILL DESIGNING AND CONSTRUCTION ENGINEER—Design for economical construction and operation. Efficient supervision of installation. Available on eight weeks notice. Reply Box T-91, MINING WORLD, 121 Second St., San Francisco, Calif.

Equipment For Sale

FOR SALE OR LEASE

GOLD, developed, ore in sight, Arizona. GOLD, two large low-grade, Colorado. SILVER, average 70 ozs. ton, Colorado. Many others. Also placers.

LESCHOT, 693 Mission Street
San Francisco, Calif.

You can "EUCS" for

MORE PROFIT IN EVERY PAYLOAD!



Model FD Rear-Dump being loaded with 15 tons of bauxite in Arkansas.



Dumping 22 tons of iron ore into the crusher on the Minnesota Iron Range—Model TD Euclid.

A 6-yard shovel loading 30 tons of heavy excavation into a Model LD in a Pennsylvania anthracite pit.

- Rear-Dump Euclids are designed and built to move rock, coal, ore and overburden and other heavy excavation at the lowest cost. Easy loading ... large capacity ... speed on the haul road and dump ... long life in heavy duty service ... these are some of the Euclid features that mean more pay in every payload.

There are models for every off-the-highway hauling requirement. Some of the variations in models that are available include five or ten speed transmissions ... semi-rigid or spring mounted drive axles ... manual or hydraulic booster steering ... standard or quarry type body.

Excellent parts and service facilities of a world-wide distributor organization are quickly available ... assure prompt, efficient service when needed. For full information on the Euclid line of earth moving equipment call or write today.



The EUCLID ROAD MACHINERY Co. Cleveland 17, Ohio

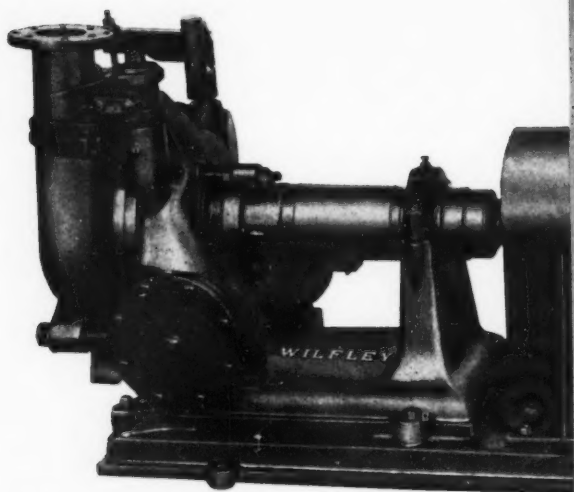


EUCLIDS



Move the Earth





**Rubber Parts for
WILFLEY
SAND PUMPS**

Interchangeable with Rubber

Among other outstanding features, WILFLEY provides complete interchangeability of parts—from metal to rubber, or rubber to metal. This is only one of many WILFLEY improvements that create cost-reducing efficiency, stepped-up production, worthwhile power savings and complete dependability. In addition to rubber, WILFLEY wear parts are available in electric furnace iron and other materials individually engineered for every application. An economical size for every purpose. Write or wire for complete details.

**A.R. WILFLEY
& SONS, Inc.**
Denver, Colo.,
U. S. A.
New York Office:
1775 Broadway,
New York City

WILFLEY
centrifugal PUMPS

WILFLEY • WILFLEY •

• WILFLEY • WILF

WILFLEY • WILFLEY •

A Companion
to the Famous WILFLEY
Acid Pump

• WILFLEY • WILFI

Buy WILFLEY for
Cost-Saving Performance

WILFLEY • WILFLEY •

• WILFLEY • WILFI

WILFLEY • WILFLEY •

WILFLEY • WILFI

WILFLEY • WILFI

WILFLEY • WILFI

WILFLEY • WILFLEY •

• WILFLEY • WILFI

WILFLEY • WILFLEY •

• WILFLEY • WILFI

WILFLEY • WILFLEY •

• WILFLEY • WILFI

WILFLEY • WILFLEY •

• WILFLEY • WILFI

WILFLEY • WILFLEY •

• WILFLEY • WILFI